SEPTEMBER 1950

National Safety News

CIAL SCIENCES

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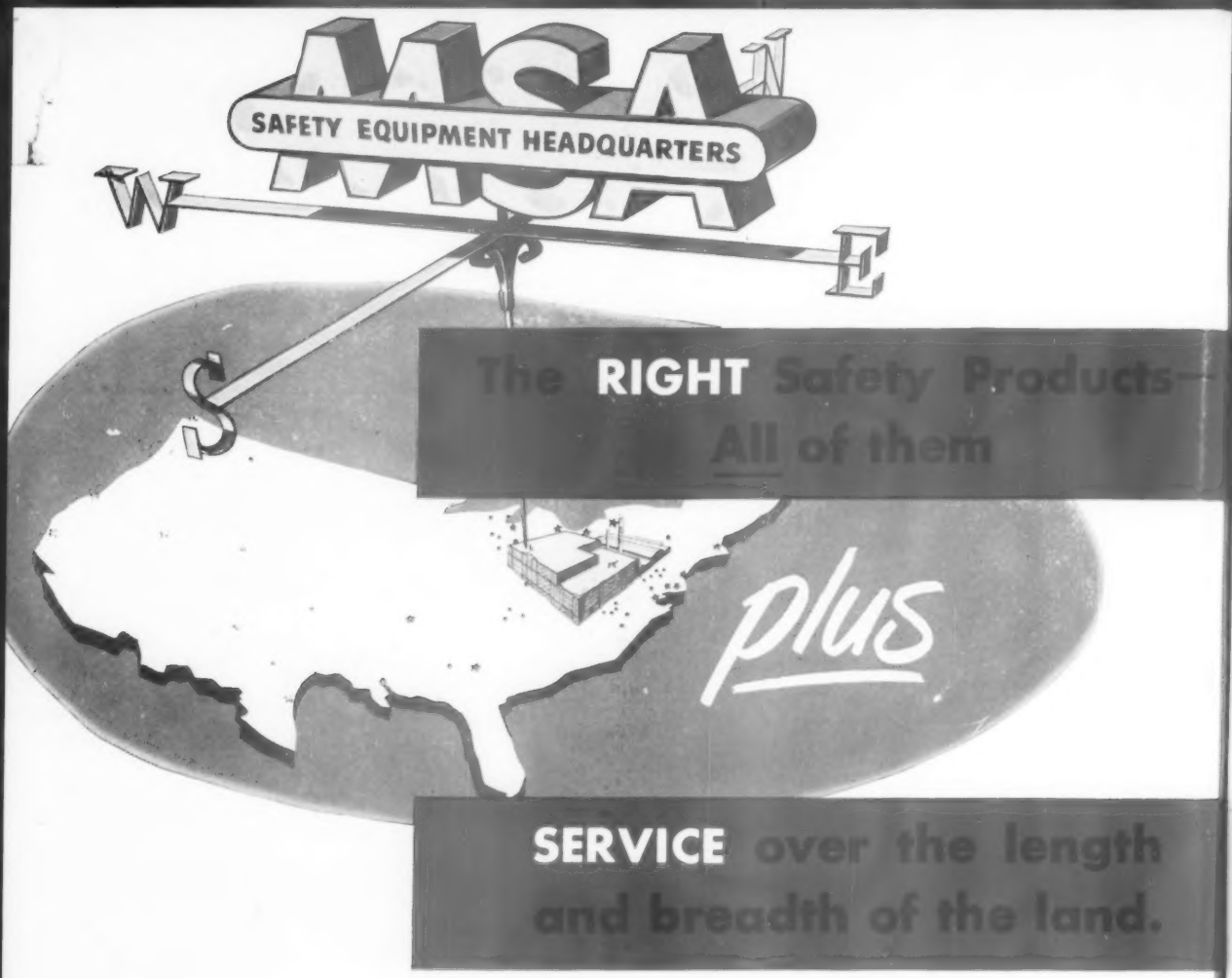
THE COUNCIL'S NEW HOME — SEE PAGE 30
(AT RIGHT)



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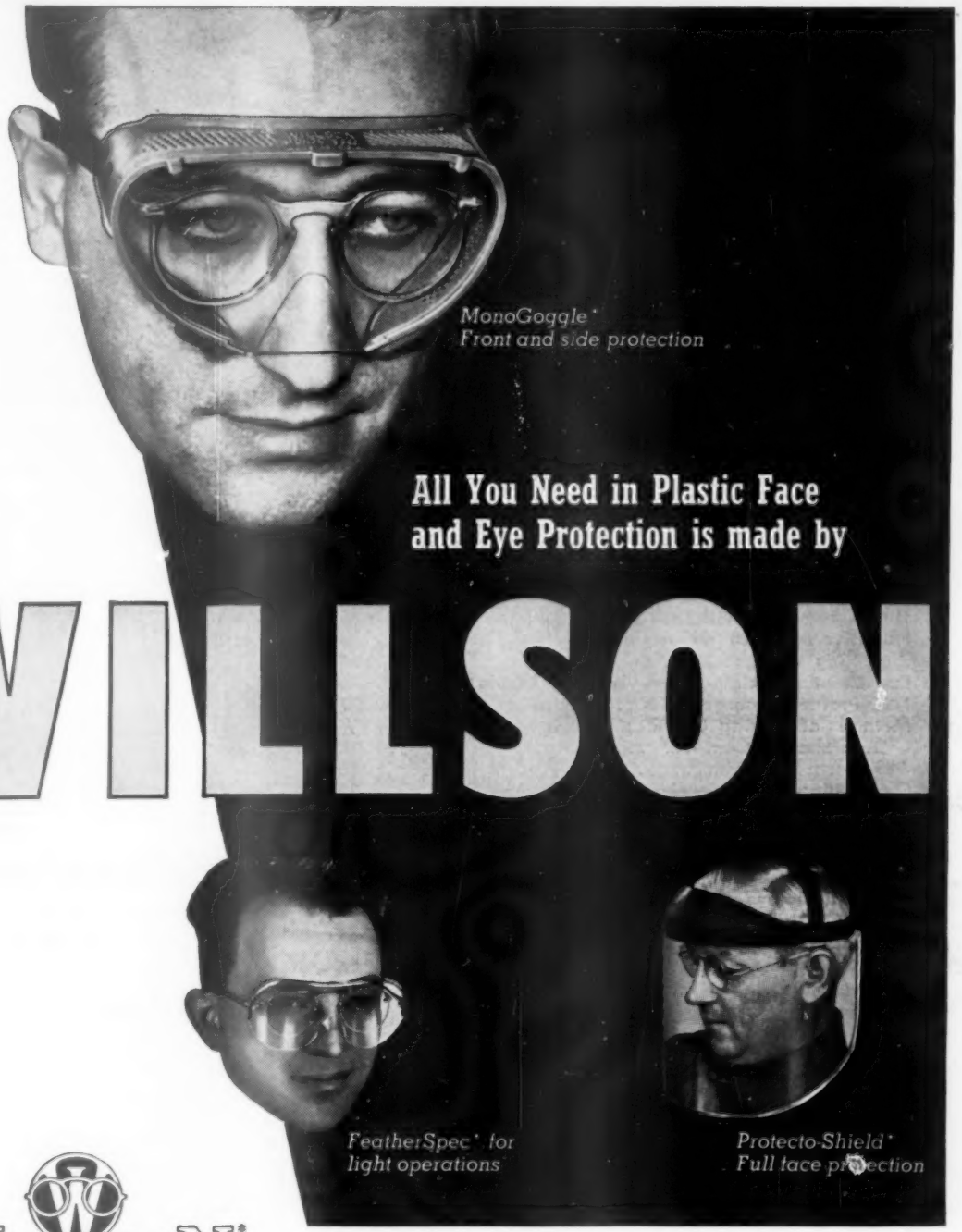

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*T.M. Reg. U.S. Pat. Off.

For Your Convenience, Willson Distributors in 61 Cities Are Listed on Page 126

NATIONAL SAFETY NEWS

Published monthly by the National Safety Council

SEPTEMBER, 1950 Vol. 62, No. 3

THE COVER: Here is the new home of the National Safety Council as seen from the London Guarantee Building. The staff of This Week magazine, whose offices provided a good view of the Mandel-Lear Building, graciously placed their facilities at the disposal of Cliff Benton and Norval Burch. At the left of the Council's home is the famous Tribune Tower.

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27,850 copies of this issue were printed.

BILL ANDREWS, *Editorial Director* — CARMAN FISH, *Editor*
NORVAL BURCH, *Associate Editor* — ROBERT L. MEYER, *Associate Editor*
C. H. MILLER, *Advertising Manager* — RALPH MOSES, *Art Director*

Statements and opinions advanced in signed articles are the personal expressions of their authors, not necessarily those of the National Safety Council.

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In This Issue . . .

ADVICE from the top but no dictation about methods and details is the principle guiding the safety program of the vast General Motors organization. How it functions and what it has accomplished are described by Bill Andrews in the leading article. (Page 18.)

• • •

Some safety man once called plant housekeeping the glamorless stepchild of the safety department. But in any plant with a good housekeeping program, a photographer can get an interesting story in pictures for the employee publication or the bulletin board. (Page 20.)

• • •

The accident picture for the USA during 1949 was brighter than for the previous year. Improvement was recorded all along the line. Here is a detailed report on the year's experience. (Page 22.)

• • •

We had hoped to give you a pictorial story of the Council's new home in an earlier issue. Unfortunately, there was a delay in getting all our equipment and furnishings installed. Now, conditions have settled down to normal after the move and we hope you'll drop in during Congress week—or before or after. (Page 30.)

National Safety Council

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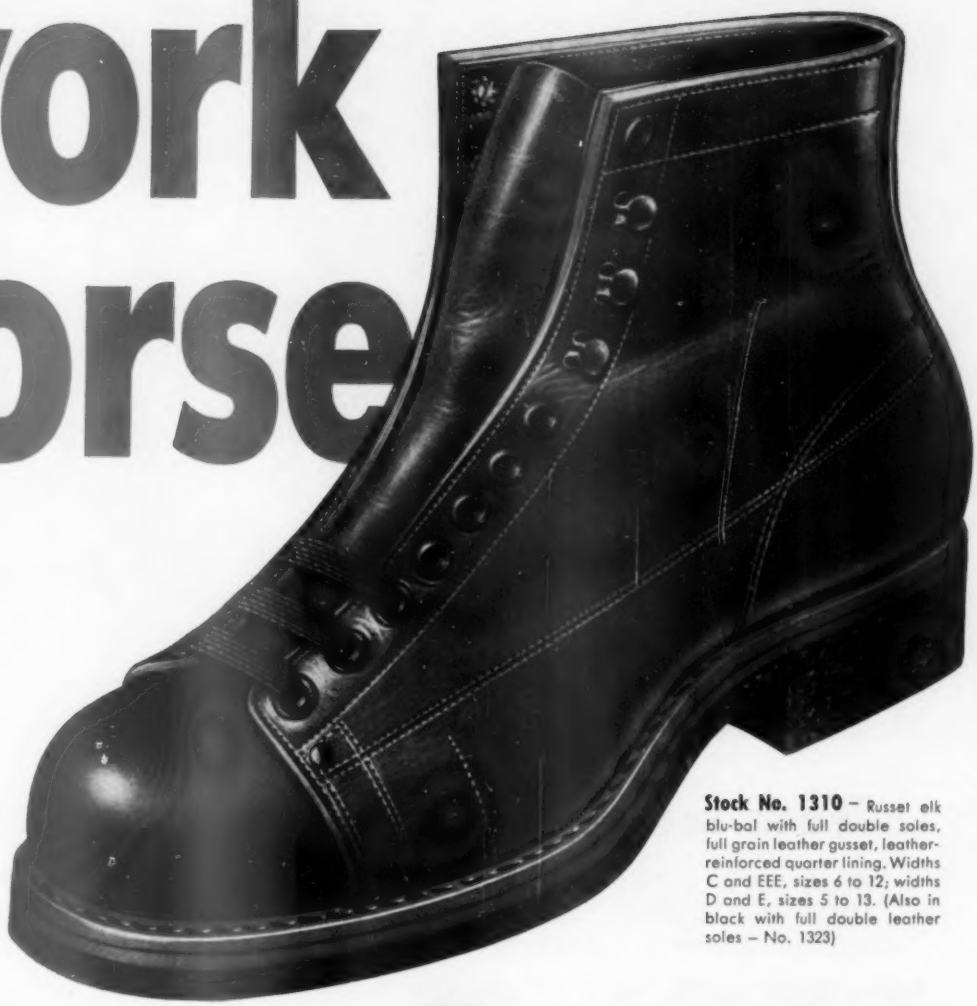
work horse



Stock No. 1310 – Russet elk blu-bal with full double soles, full grain leather gusset, leather-reinforced quarter lining. Widths C and EEE, sizes 6 to 12; widths D and E, sizes 5 to 13. (Also in black with full double leather soles – No. 1323)

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We've sold more pairs of this one Lehigh Safety Shoe in a year than any other style in Lehigh history! Why? Because it's built like an athlete's shoe . . . for *speed* as well as *stamina*. It's lighter, far more supple and limber than the ordinary work shoe. But the soft, unlined upper leather and the tough, anti-skid, oil-resistant Neocord solo are bears for wear. There are no seams to hamper easy-flexing where the foot bends. And of course, the old reliable Lockrim* steel toe box is out in front to take punishment! To top it all, it's a *big* money's worth. Order a sample pair today and show it to your men. Where a work shoe is needed, this is the one they want!

FREE pay envelope stuffers

This convincing leaflet tells your men how they can profit by wearing safety shoes in and outside the plant. Write on your company letterhead for a quantity to cover your payroll.

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Division of the ENDICOTT JOHNSON CORPORATION

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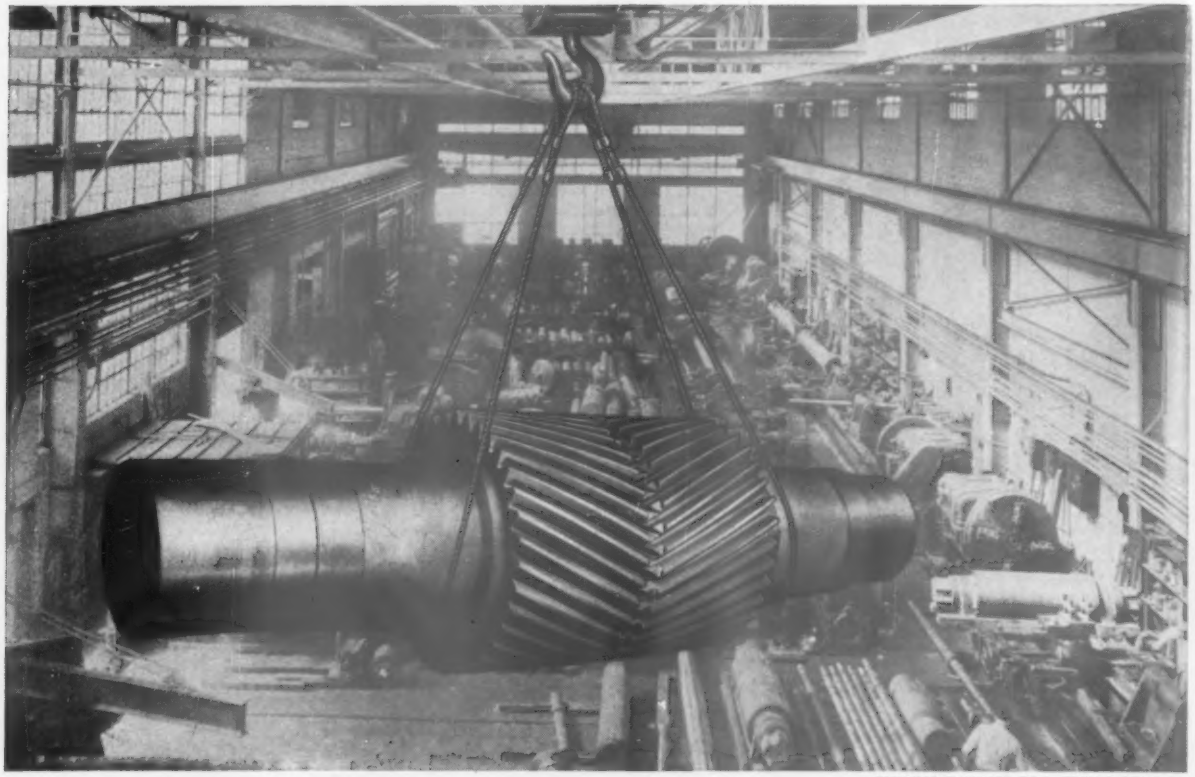
ALLENTOWN, PA.



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How much is safe handling worth?

*Apply this formula: **THE SUM OF A DROPPED LOAD IS EQUAL TO ITS OWN VALUE AND THE VALUE OF WHAT'S BELOW IT**—and you can estimate the worth of safe handling of any load . . .*

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Heat-Fag and Fume-Fag OUT!

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Here, in the cool, fresh air circulated onto the job by a Coppus "Blue Ribbon" Blower or Exhauster, you'll find just what you were looking for —

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THE BLOWERS THAT PUT MORE MINUTES IN EVERY MAN-HOUR

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Economic Co-operation Administration

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The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the G. M. Basford Company and

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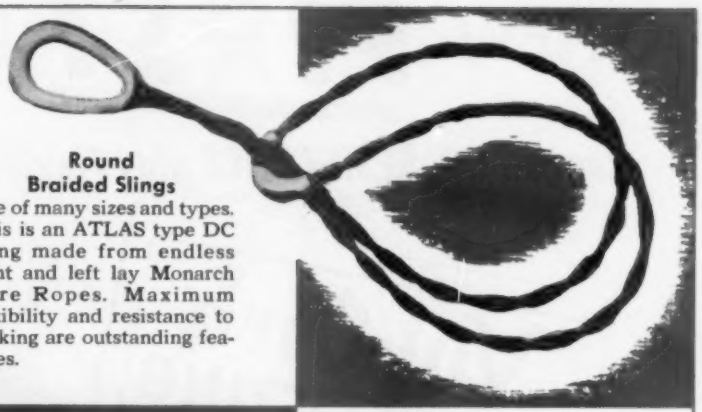
There's a MACWHYTE Sling



Round Braided Slings
One of many sizes and types. This is an ATLAS type DC Sling made from endless right and left lay Monarch Wire Ropes. Maximum flexibility and resistance to kinking are outstanding features.

Flat Braided Slings
This is a DREW type 5 Sling available in many sizes and assemblies. The DREW Sling is made from one endless Monarch Wire Rope — very flexible and kink resistant.

That's the right sling

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All made to order for greatest safety

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GENUINE NEOPRENE OIL-RESISTANCE

plus

NEW amazing Air-Cell Processed LIGHT-WEIGHT f-l-e-x-i-b-i-l-i-t-y and Cushioning Comfort

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NEW surefooted SLIP-RESISTANCE without need of Tread Design

NEW long-wearing Trim Edge Appearance for dressy wear anywhere . . . Do not pick up steel scraps, chips, etc.

Regular VUL-CORK soles are unique for rugged—*yet flexible*—ALL-PURPOSE work wear . . . on farms . . . construction . . . delivery . . . filling stations, etc.—everywhere where excessive oily underfooting requires Neoprene.

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VUL-CORK SOLE DIVISION TANEYTOWN, MARYLAND

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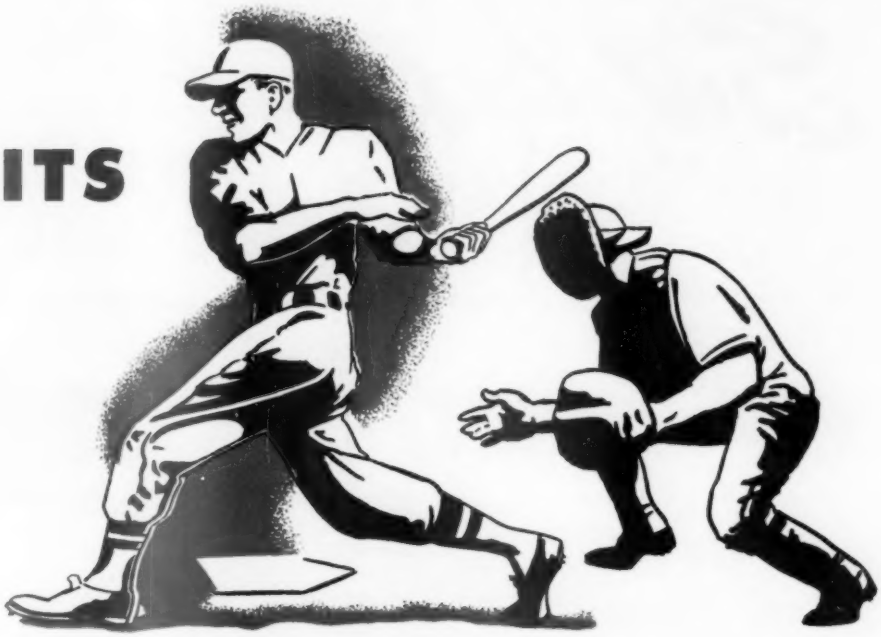

IN THIS DOUBLE HEADER

You will find many new products and many new faces at the Safety Exposition this year. Many companies that have never participated before will be on hand with their equipment.

The increasing demand for exhibit space at the National Safety Congress and Exposition has made it necessary to greatly enlarge the exhibit facilities and we are proud to announce a Double Header Exposition for the coming Congress.

Industrial health and safety equipment will be on display in the Casino Room of the Congress Hotel as well as in the Exhibition Hall at the Stevens. Unless you visit both places you will not have seen the Exposition. Almost 200 booths will be filled. The Exposition has grown to seven times its original size. This will be the most comprehensive display of safety equipment ever brought together.

All exhibitors are looking forward to seeing you and helping you with your equipment problems. Don't miss a single display.

CASINO ROOM — CONGRESS

EXHIBITION HALL — STEVENS

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38th NATIONAL SAFETY CONGRESS AND EXPOSITION

CHICAGO — OCTOBER 16 - 20, 1950

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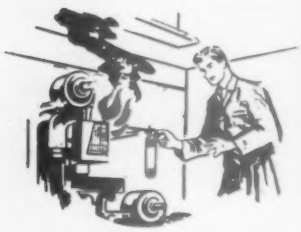
THE SENSATIONAL NEW LINE OF HAND PORTABLE, DRY CHEMICAL FIRE EXTINGUISHERS THAT OFFERS POSITIVE ON-THE-SPOT FIRE PROTECTION!

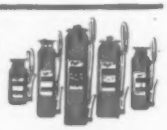


The exclusive Safe-T-Meter gauge tells you at a glance it's **Ready To Go!**

NEW RECHARGE CYLINDER MAKES PRESSURIZING EASY!

Just follow simple directions on recharge cylinder label... no tools or technical knowledge is needed. When cylinder is expended return to your Safe-T-Meter dealer for replacement.

Write also for information concerning the complete line of Safety First Industrial Dry Chemical Extinguishers.



Ranging in size from 5 lbs. to 30 lbs., there is an extinguisher to fit your every need!

SAFE-T-METER FEATURES!
B-2, C-2 Underwriters' Rating, Pressure Gauge Tells Status Of Extinguisher At A Glance, Can Be Used Intermittently, On-The-Spot Refilling, No Tools Required

Now, for the first time, Safe-T-Meter, Safety First's revolutionary, new visual gauge fire extinguisher offers positive on-the-spot protection! Its easy-to-read dial tells its status at a glance . . . eliminates the danger of an empty extinguisher when fire strikes! Available in 2½ and 4 lb. models, Safe-T-Meter weighs so little and is so easy to operate that even a child can use it. Economical, too, because Safe-T-Meter's sturdy, precision built construction lasts a lifetime . . . its highly effective Safety First dry chemical is inexpensive to replace. Write now for complete information!

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FAST, completely trustworthy and willing to serve twenty-four hours a day, 365 days a year. No vacations. No time off. Pay — less than a cent an hour.

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Even though increases in rates are still needed to catch up with past increases in costs, your telephone will continue to be a big bargain.

Few things in all this world give you so much for so little as the telephone.

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SAFETY SHOES WITH SOLES

The Right Combination

FOR SAFETY • LONG WEAR • OIL RESISTANCE

No. 610 A stylish moccasin oxford in soft burgundy elk with Neo-Cord soles and heels.

No. 683 Neo-Cord soles and heels give added value to this comfortable brown elk lace-to-toe blucher.

No. 600 This "Hi-Lo" style with Neo-Cord sole and heel combines comfort with high shoe protection.

No. 636 For resistance to oil and heat this Neo-Cord soled brown blucher has no equal.

No. 637 The newest and finest—an engineer's boot 10" high, made with Neo-Cord sole and heel, brass reinforcing nails.

Iron Age safety shoes soled with Neo-Cord are your best bet for safety and durability. You get protection over the toes from concealed steel toe boxes. You get underfoot protection from the superior non-slip qualities of Neo-Cord. You get long wearing protection, too, thanks to sturdy Iron Age safety shoe construction and the oil-resistance that Neo-Cord soles alone supply.

This protective duo is now stocked in the five Iron Age styles pictured. Note particularly the *new* Engineer's Boot, No. 637. Write for a copy of our new Catalog 51 which completely describes these and the many other Iron Age styles.

Iron Age

Iron Age DIVISION

H. CHILDS & CO., INC., PITTSBURGH 22, PA.

ON
IRON AGE SAFETY SHOES

protection, both top and bottom. oved their worth under all Stout cords combined O-CORD soles slip- ar life.
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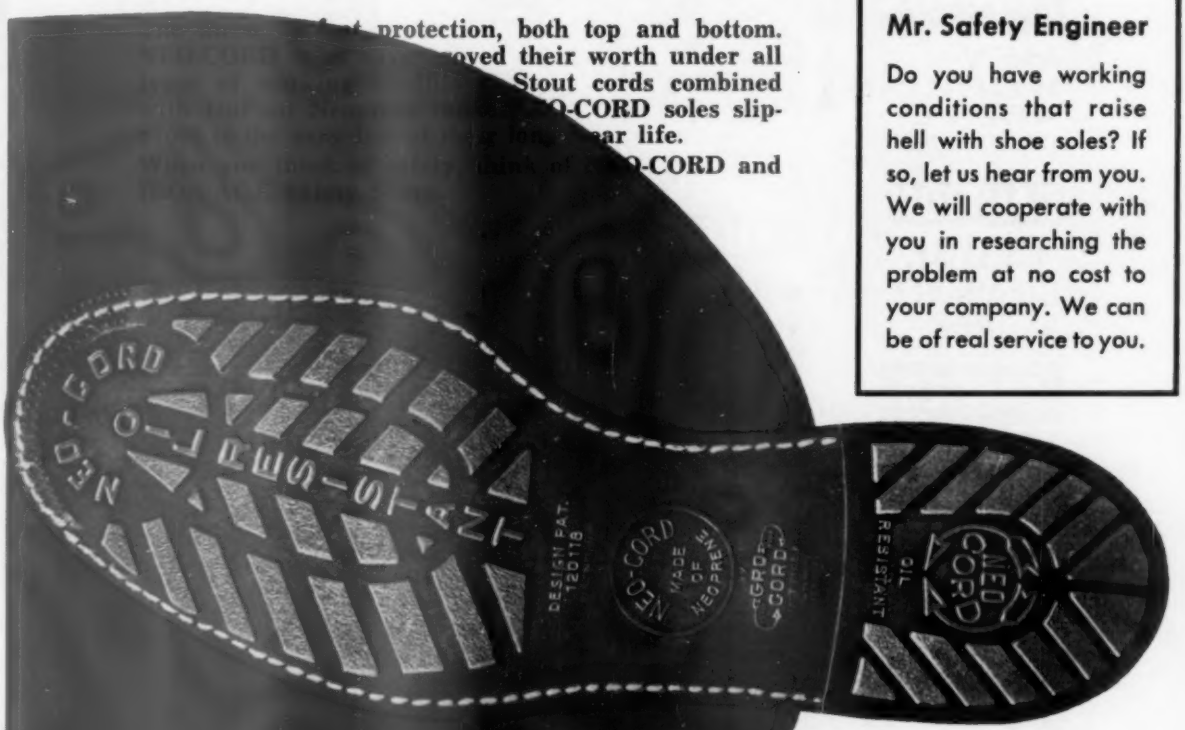

- RESISTS ACIDS, CAUSTICS, HEAT
- GASOLINE-PROOF
- LONG WEARING
- GREASE-PROOF
- SLIP-PROOF
- OIL-PROOF

Mr. Safety Engineer

Do you have working conditions that raise hell with shoe soles? If so, let us hear from you. We will cooperate with you in researching the problem at no cost to your company. We can be of real service to you.

Stop at our booth No. 123 when you are at the National Safety Show in Chicago.

GRO- R CO.

CANADIAN PLANT:
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LOOKS right!

Beautifully constructed of gleaming stainless steel, it looks and performs like a thoroughbred.

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You'll be amazed at how inexpensively you can guard against fire with this superior extinguisher.

Kidde's New 2½ Gallon

WET CHEMICAL STAINLESS STEEL FIRE EXTINGUISHER

gives you more for your money!

All stainless steel shell means greater strength, lighter weight, safer construction, years of reliable service . . . with the same instantaneous action and sure protection against fire that Kidde has always given. Transparent nozzle lets you see at a glance that nozzle passage is clear. Permanent nameplate with directions can *not* fall off.

Take your choice of clear water, soda-acid or foam type and get all the advantages of Kidde construction and Kidde "know how." Also available in an Anti-Freeze type, made of silicon bronze, which eliminates the danger of corrosion that usually results from the Anti-Freeze solution.

Ask your Kidde Dealer or write us for complete information today.

Kidde

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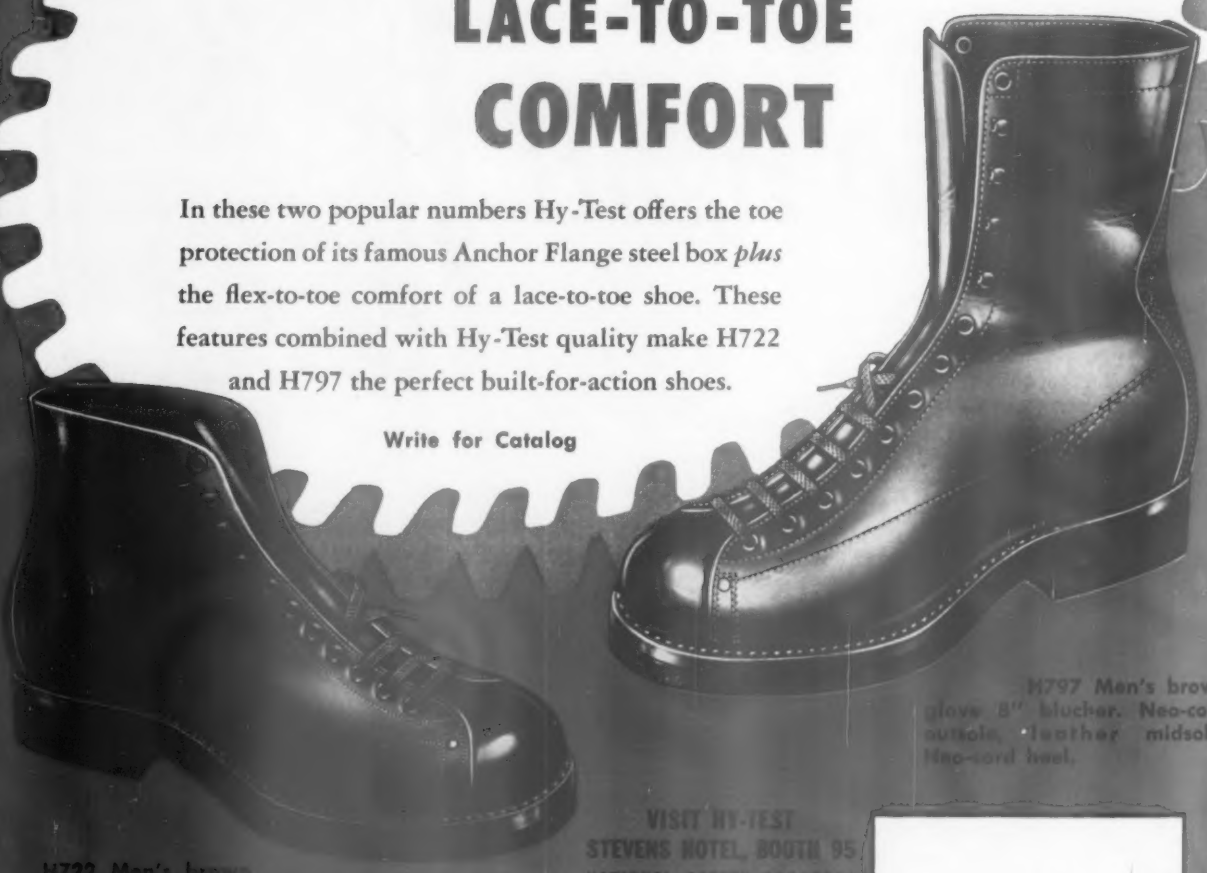
HY-TEST SAFETY SHOES

STEEL TOE PROTECTION *plus* LACE-TO-TOE COMFORT

In these two popular numbers Hy-Test offers the toe protection of its famous Anchor Flange steel box *plus* the flex-to-toe comfort of a lace-to-toe shoe. These features combined with Hy-Test quality make H722 and H797 the perfect built-for-action shoes.

Write for Catalog



H797 Men's brown glove 8" blucher. Neo-cord outsole, leather midsole, Neo-cord heel.

H722 Men's brown glove blucher. Resistoil outsole, leather insole, resistoil heel.

VISIT HY-TEST
STEVENS HOTEL, BOOTH 95
NATIONAL SAFETY CONGRESS AND EXPOSITION
CHICAGO, OCTOBER 18-20

. . . Insure Workers' Feet in Sure Protection

with

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HY-TEST SAFETY SHOES

NATIONAL
SAFETY NEWS

SEPTEMBER, 1950

Our Greatest Responsibility

FOUR MILLION children will make their first great venture into the outside world this month. Proud and scared at once, they will wave goodbye to their damp-eyed mothers and trudge to the school or the bus stop.

When we, as society, take over a share of responsibility for these children, we undertake a job of enormous difficulty and importance.

I am not too much worried about the kind of a protective job we will do with these children. Our schools have made an impressive record in reducing accidents to students, through education, better plant design and such regulatory measures as the establishment of school patrols.

But I am deeply concerned about the prospects of educating these five and six year olds in such a way that they can meet the difficult problems they will face a few years from now. Education, as we experienced it in our childhood, was *not* good enough.

We have created a nation with unequalled mastery over environment and natural resources. We have equipped — I almost said armed — a nation with the means of traveling, quite literally, faster than the wind.

In our commonplace, humdrum life we are masters of magic, outdoing in fact the wildest imaginings of the pseudo-scientists and fiction writers of a generation ago. We think nothing of sitting on a furniture made of plastics unknown in all the milleniums of man's existance, looking at events happening a thousand miles away.

We have torn the atom apart, with results that make us a frightened people. Now we are seriously considering the question of hanging a new astronomical body in the heavens — and the only question anyone asks is not whether it is possible but whether it is worth the money it will cost.

There are those who will tell you that it is something like an even money bet whether our children will be exploring outer space in rockets or hunting rabbits with clubs for their next meal.

In our own field of safety, we know that what the schools must teach—if we are to progress—is not only the techniques of safety but also the will toward safety, the proper attitude, the *morals* of safety!

Our children will drive cars, will tinker with them, will understand them, even without our help. But unless we can find a way to make them wiser than our generation, more decent, more courteous, we face the fact that automobile accidents will be a bleeding sore on our nation's body.

The same applies to accidents in our work places, on our farms, in our homes. If we would make man safe, we must reach his heart as well as his mind.

I do not think that safety is an isolated case of this. In all our development of physical science, in all our mastery of the material world, we only progress to destruction if we do not learn a mastery of self that makes us fit to use our terrifying powers. Because this problem is so broad, I feel that our big job is to work hard for the improvement of our schools in general, with the utmost confidence that any well-run educational program will, of necessity, do a good safety job.

I bespeak, in all earnestness, your individual and corporate interest in your community's schools. On the job that is done there hangs much more than the three "R's"—the stake is the whole shape of the world and the whole problem of the welfare of mankind.

No matter how difficult may be the problems we face at the moment, we must not fail these five and six year olds. If we do, we fail in all—regardless of the skill and wisdom we display in meeting the present crisis.

They *are* the future—and they *must* be wiser and better than we have been!

Ned H. Dearborn

THE GIANT AND THE LOOSE REIN

David Mould, GM safety director (left), confers with medical, hygiene and manufacturing men on new type of lead grinder's helmet.

General Motors' safety program is a masterpiece of guided decentralization and local autonomy

By BILL ANDREWS

A NATIONAL SAFETY NEWS *Field Report*

THOMAS Jefferson would be puzzled by the General Motors Corporation.

In one sense, its great size and the very fact that it symbolizes the industrialization of America would seem to make it a negation of everything Jefferson wanted America to become.

But in another sense, GM's method of organization is curiously Jeffersonian. In the high-level policy directives issued from headquarters in Detroit, the words "shall" and "must" are rarities, and the words "may" and "should" are much more common.

The giant uses a loose rein.

The loose-rein technique is evident in GM's safety program. Neither the top management of General Motors nor its headquarters' safety staff attempts to blueprint or dictate the details of the safety work in GM plants.

The basic statement of safety policy is a 300-word document signed by C. E. Wilson, president of the corporation. It sets up a six-point program for safe plant operation under the following headings:

1. Interest in safety on the part of top management.
2. A definitely established safety organization through the supervisory levels to each individual employee.
3. Adequate and capable full-time safety personnel.
4. Written safety procedure and instructions for each occupation.
5. Thorough safety instruction of new employees.
6. Stimulation of interest in safety on the part of every employee.

In the discussion of these points contained in the document, only one point is made imperative. That is Point 1, under which the discussion reads:

"It is essential that the men who have the responsibility for the operation of the plant and the authority to change conditions—have a sympathetic attitude toward safety and recognize it as a management responsibility."

The other points are phrased as strong advice, not as "musts." For example, the discussion on Point 2 reads: "The general manager (of the plant) should meet with the top supervisory staff periodically to review the safety situation; discuss major safety problems and make decisions for correction; formulate safety policies for mechanical safeguarding of equipment, good housekeeping, education, etc. Superintendents should meet with their foremen at least once a month to explain the general safety policies of the division as approved by top management. Foremen should talk to two employees daily regarding the safety policies and the safe practices necessary on their particular operation."

It is important neither to minimize nor exaggerate this distinction between "it is essential" and "should." In the great majority of GM plants, a real effort is made to follow the whole six-point program in detail. Nonetheless, there are plants whose safety programs are markedly different in detail from that laid down in advice from headquarters. But on Point 1—the attitude of management toward safety—the law is firmly laid down, and the individual plant or division manager who deviates from the standard program

must show by results that this attitude is maintained and implemented by effective safety work.

But if the GM headquarters operates on a theory that a minimum of corporate "lawmaking" is desirable, it also knows that even the best program is a worthless scrap of paper so long as it remains mere words.

So the corporation has established a staff set-up to assist local managements in their accident prevention work and to check up on execution—not in terms of details but in the actual saving of human life and health.

GM's corporate safety work has the following chain of authority and direction:

Under Mr. Wilson, responsibility falls first on H. H. Curtice, one of GM's three executive vice presidents. H. W. Anderson, vice president in charge of personnel, is the next link. Under him comes George A. Jacoby, director of personnel services. David T. Mould, GM's safety director, heads one of the several sections under Mr. Jacoby.

It is an interesting comment on GM's interest in safety that at three points in this chain of command we find men active in the work of the National Safety Council. Mr. Wilson is a long-time member of the Council's Board of Trustees. Mr. Jacoby serves as vice president of the Council for industry and as chairman of the organization's Industrial Conference. Mr. Mould is past general chairman of the Council's Automotive and Machine Shop Section and a key member of the Industrial Conference.

The safety section headed by Dave Mould at General Motors consists of but three other persons —Kenneth S. Hedges, the associate safety director, a statistician and a secretary. It is, obviously, not a group designed to carry the load of detailed safety work. But it has proved itself adequate to handle the staff assignment of helping local managements in safety problems.

I spent two days with Dave Mould and Ken Hedges recently, getting their slant on their jobs, watching them work. I came at a time when things were breaking badly, while they were a little groggy from one of those runs of accidents that sometimes hit a big organization in spite of an excellent safety program. It must have been a badly timed visit from their point of view, but it did give me a different insight into the program and the men than I would have had if I'd arrived at a moment of temporary triumph in accident prevention.

For one thing, Ken Hedges came in during my stay, back from an on-the-spot investigation of a six-foot fall from a ladder

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DELCO foreman (below left) makes direct contact with employee to explain new safety device. Company-furnished safety equipment (right) is displayed by the two young ladies who comprise half the staff of the GM headquarters' safety office. Eye protection service (upper right) is brought direct to the plant floor via this mobile unit in a GM plant.

THEY CLEAN HOUSE ALL YEAR

From the walkway of an overhead crane, a vacuum cleaner removes dust from beams and trusses.

HOUSECLEANING in the industrial plant is more than an annual ritual; it is a continuous process, and it involves the combined efforts of all employees.

Janitors and matrons, of course, are necessary in keeping the housekeeping program functioning but they cannot do the whole job alone. At the plant of Western Cartridge Division of Olin Industries at East Alton, Illinois, they don't have to. The accompanying photos show how the various departments are doing their part.

Neat and secure piling of material is a basic principle of plant operation. It makes a tidier looking plant and provides more room to work and store material. Marking aisleways is a strong influence for good housekeeping and at Western constant effort is made to keep material within the white lines.

The operator of a machine must take a certain pride in his work and keep the machine and the surrounding area neat and orderly. The trucker who spills a load doesn't let it lie; he picks it up and leaves the floor as clean as it was before the spill. Cleaning up oil drippings promptly is another practice which is observed faithfully.

Trucks make scheduled pickups of all waste materials. Combustible materials are hauled to a burning ground and destroyed.

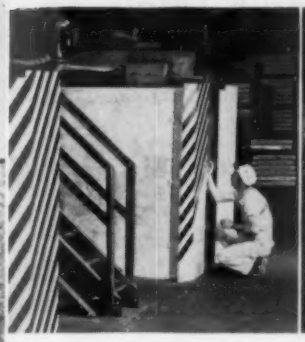
The work of the janitors and their departmental helpers is aided by a variety of equipment. Huge dust collectors keep departments clean where excessive dust is generated in manufacturing processes. Vacuum cleaners are used regu-

Making inspection on .22 draw press. Good lighting and orderly conditions aid the work.

Unhooking scrap bucket from crane hoist. Note uniformity of cans and cleanliness of floor.

Huge dust collectors installed on outside of Cast Shop keep building free from dust.

Below, left: Painting bumper guards on pusher slab at hot mill to increase visibility. Right: Housekeeping includes facilities for personal cleanliness.



larly to keep it from accumulating on overhead beams and trusses.

For the floors, equipment ranges from brooms and mops to floor machines and the large power sweeper which is used to keep the plant yard clean. The whole program, it is strongly felt, is helping to make Western a better place to work.

Housekeeping, like all phases of the safety program, receives regular attention in the company's publication, *The Westerner*, through whose courtesy the accompanying pictures are reproduced.

Left: A floor machine removes oily grime from the brass mill floor. Right: The Transportation Department helps by hauling scrap paper to burning ground.

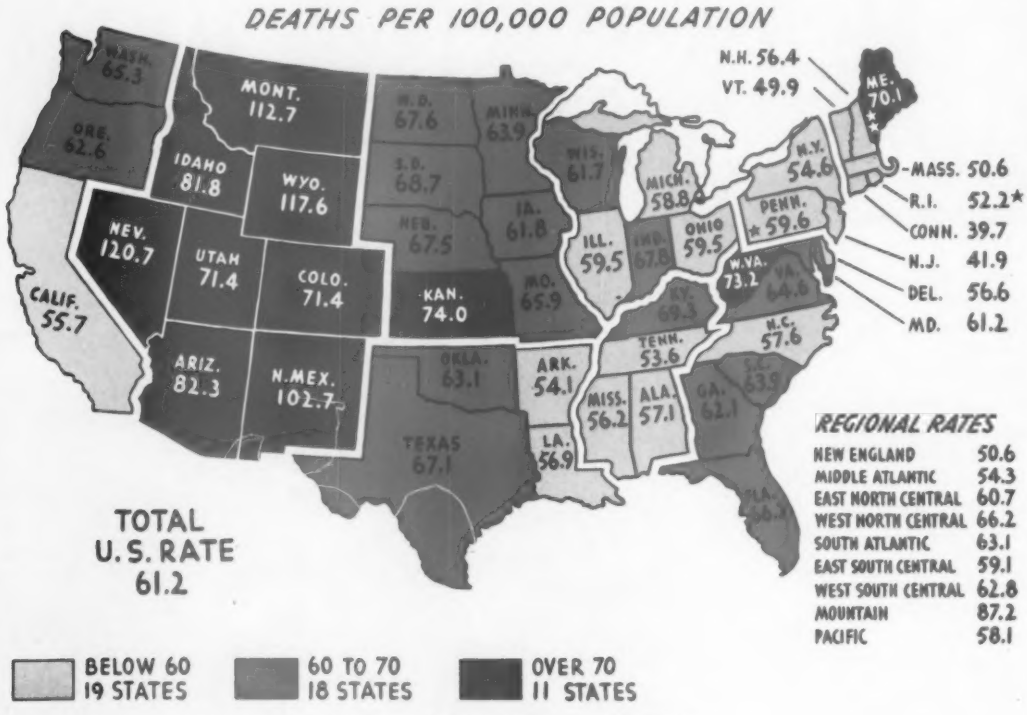
Wide aisles, clearly marked, facilitate movement of trucks with palletized loads.

Signs and posters are more convincing when backed by good housekeeping and rule observance.

Fatalities Fewer in 1949

Accidental Death Totals 3% Below 1948

By ALVAN D. BATTEY



ACCIDENTAL DEATH RATES, BY STATES, 1949

THERE were approximately 91,000 accidental deaths in 1949. This represents a sizable reduction from 1948, but not as great an improvement as indicated by the 1948 total published a year ago. Changes have been made in the official methods of classifying deaths, beginning with 1949, which require adjustment of the 1948 figures to obtain comparability.

These changes, affecting principally the classification of deaths of old persons—and thus principally the total of fatal falls, reduce the original 1948 death estimate from 98,000 to 94,000. Compared to this figure the 1949 total shows a decrease of 3,000 deaths, or 3 per cent.

The 1949 accidental death rate was 61.2 per 100,000 population, with no adjustment for changes in the age distribution of the population since 1940. If such adjustment is made, the rate drops to 59.5. The change from 1948 for either rate is a 5 per cent decrease.

The 1949 rates are the lowest ever recorded. Direct comparison with earlier years cannot be made, as stated above, but allowing for the changes in classification methods the 1949 crude rate was 28 per cent less than the 1903-07 rate. If deaths from motor-vehicle accidents—which were rare in 1903-07—are omitted, the death rate for other accidents showed a decrease of fully one-half by 1949.

There were no disasters in either 1948 or 1949 which resulted in as many as 100 deaths. In accidents resulting in 5 to 99 deaths, however, the 1949 death toll was above 1,200, or about 150 more than occurred in such accidents in 1948,

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ALVAN D. BATTEY is a Senior Statistician, National Safety Council, and editor of *Accident Facts*. This summary of the accident experience of 1949 is based upon *Accident Facts—1950 Edition*, the Council's annual compilation of essential information about accidents. This booklet is now being distributed to members.

according to tabulations of the Metropolitan Life Insurance Company.

Nonfatal injuries in 1949 are estimated at approximately 9,500,000. About 330,000 of the injuries resulted in some permanent impairment, ranging from the loss of part of a finger to total crippling. The remaining injuries resulted in temporary disability extending beyond the day of the accident, but in many cases to only a few days.

Accidents vs. Disease. Detailed information on deaths from disease is not available for 1949, but it is reasonably certain that accidents held the same position as in the previous year. In 1948 the crude death rate for accidents was approximately 67 — the fourth highest rate for any cause. The leading cause was heart disease, with a death rate of 323. Cancer was second, with a rate of 135, and cerebral hemorrhage was third, with 76.

Thirteen years earlier, in 1935, pneumonia and nephritis had death rates considerably higher than the accident rate, but by 1948 the pneumonia rate had dropped 57 per cent and the nephritis rate 35 per cent as a result of new medicines and improved medical techniques.

From age 1 to age 35 there were more deaths from accidents than any other cause.

The 1948 accident rate for males was much higher than that for females—93 compared to 42.

DEATHS AND DEATH RATES OF WORKERS BY MAJOR INDUSTRIES, 1949

Industrial Group	Total Deaths	Deaths per 100,000 Workers	No. of Workers per Death
Mining, quarrying, oil and gas wells	1,000	116	850
Construction	2,100	77	1,300
Agriculture	4,300	54	1,900
Transportation	1,300	43	2,300
Public Utilities	400	28	3,500
Manufacturing	2,300	15	6,700
Service	2,100	14	7,100
Trade	1,500	14	7,100

For males, only heart disease with a rate of 388 and cancer with a rate of 135 outranked accidents as a cause of death. Among females four causes had higher death rates than accidents: heart disease, 258; cancer, 135; cerebral hemorrhage, 78; and nephritis, 49.

For males alone accidents were the leading cause of death from age 1 to age 37.

Costs. Accident costs that can be estimated totaled about $7,500,000,000 in 1949. Wage loss, including the present, or discounted, value of anticipated future earnings for deaths and permanent total disabilities, was about $2,500,000,000; medical expense, $400,000,000; overhead cost of insurance, $1,500,000,000; property damage in motor-vehicle accidents, $1,100,000,000; property damage in fires, $652,000,000; indirect costs associated with occupational accidents, $1,300,000,000.

Age Distribution. In 1949, as in other years, the lowest accidental death record was for children 5 to 14 years old. The death total was 5,500, and the death rate per 100,000 population was approximately 22. The rate was 9 per cent lower than in 1948 and 50 per cent less than the average rate for the five years 1903 to 1907.

The largest accidental death total, and the highest rate, was recorded for persons 65 years old and older, even though the changes in death classification methods, mentioned above, resulted in a total about 4,000 less than would have been recorded under the

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TRENDS IN ACCIDENTAL DEATHS, 1948 TO 1949

TABLE I — BY AGE

	Total Deaths	Deaths per 100,000 Persons	% Change in Rate from 1948
All Ages	91,000	61.2	—5%
0 to 4 years	8,100	51.2	—8%
5 to 14 years	5,500	22.3	—9%
15 to 24 years	11,500	51.5	—7%
25 to 44 years	19,800	44.9	—4%
45 to 64 years	18,800	61.4	—7%
65 years and over	27,300	242.2	—2%

TABLE II — BY TYPE

Type of Accident	Total Accidental Deaths	Death Rate per 100,000 Population	% Change in Rate from 1948
Motor-vehicle	31,500	21.2	— 4%
Falls	21,300	14.3	— 2%
Burns	6,500	4.4	—10%
Drownings	6,700	4.5	0
Railroad	3,300	2.2	—15%
Firearms	2,350	1.6	0
Poison gases	1,800	1.2	—14%
Poisons except gas	1,600	1.1	0

Typical tool cart arrangement for city streets. Work area is at an avenue and street intersection. Flashers warn approaching avenue traffic while a third unit covers one-way street approach. White reflecting sign on tool cart faces avenue traffic. Portable floodlights illuminate sign on dark days and at night. Orange-colored equipment has high visibility.

Protecting Work Areas

With exposure of workmen in traffic growing more serious, Consolidated Edison studies protective methods

SERVING a population of 8,000,000 in a metropolitan area of 530 square miles, employees of Consolidated Edison System companies are exposed to the increasing hazards of street traffic as well as to risks more directly connected with their work.

In the history of these companies, which goes back 71 years for electric and 130 years for gas service, experience has taught the need for protecting these men at their work. In the days of horse-drawn vehicles and bicycles, relatively little protection was needed. But as transportation graduated to the motor vehicle the problem became a major one.

The system companies now maintain 46,000 miles of underground cable, 25,000 miles of overhead line, 4,000 miles of gas and 75 miles of steam mains. In connection with the electric system there are some 190,000 manholes and service boxes.

With New York city traffic reaching the saturation point, the situation has been growing more serious. A three-year study of claims for the years 1947-49 shows a total of 41 personal injuries as follows:

1947	12
1948	13
1949	16

Thirty-two of these cases occurred during daylight hours and nine occurred after dark. One fatality resulted in 1947. In addi-

Supervisors and key men attend a series of lectures and demonstrations on work area protection.

tion, there were cases in which the public came in contact with our street operation area, either on foot on in vehicles. These included injury by contact with tool carts, work area protection, and parked cable reels, and falling into excavations.

Private and commercial drivers sometimes feel that even proper use of the traffic lanes by public utilities constitutes a hazard to their driving. They do not realize that the necessity of maintaining service is responsible for this temporary inconvenience. The problem for the utility is one of public relations as well as of operation.

To meet these problems, Consolidated Edison recently initiated a "Planned Work Area Protection Program." The program is the result of a detailed study of all phases of work area protection made by the System's Street Protection Committee under the guidance of Arthur W. Wallander, assistant to the president of Consolidated Edison and former Police Commissioner of New York.

Since its inception nearly two years ago, the Street Protection Committee has coordinated on a system-wide basis the study of street protection problems previously handled by the separate companies in the Consolidated Edison System. Although the individual departments cooperated with Consolidated Edison's safety bureau in their approach to street safety problems, it was felt that effort would be more effective if integrated under one committee in which all companies are represented.

The committee experimented with mobile equipment, protective equipment, traffic warning devices, color combinations, and work area layouts. New York City officials were consulted and street opening problems in other cities were studied.

These studies developed procedures which could be applied to setting up work area protective equipment under different operating conditions and the standardization of equipment. Trucks, tool carts, manhole guard rails, barricades and other accessory equipment have been painted a bright orange. Orange tarpaulins have also been made available. Tests have shown that this color provides maximum visibility day and night.

Approaching motorists are warned of the presence of utility work areas by powerful red flashers that give off an intermittent beam. These can be connected to an a.c. power source, or they can be battery-operated. Supported by telescopic brackets, these flashers can be mounted on tool carts or on individual bases. They can be set at different elevations so as to be seen over the top of intervening traffic as well as at close quarters.

Eye-catching signs made from a white reflecting material bearing the company name, the Edison man symbol, and a "Men at Work" warning have become standard equipment for all splicing and tool carts. Portable floodlights are used to highlight them at night and on dark days.

During April and May more than 600 field force supervisors and first-line mechanics from Consolidated Edison and its subsidiaries—the Westchester Lighting Company, Yonkers Electric Light and Power Company, New York Steam Corporation, and Consolidated Telegraph & Electrical Subway Company—attended a special series of lectures and demonstrations and were briefed on the System's new equipment and standard operating procedures.

They were given a new manual on planned work area protection which outlines the purpose of the

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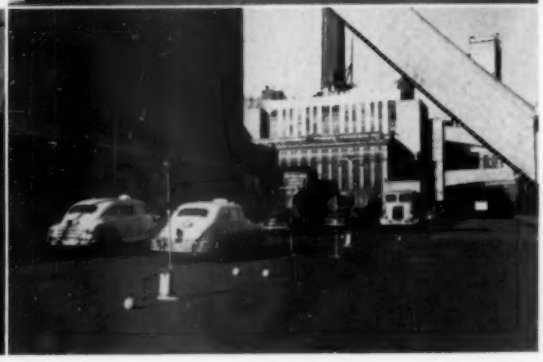

Right: Exhibit of equipment for work area protection used in training program.

Below: Demonstrating equipment to supervisors.

Lower right: Set-up for operations on one-way express highway. Wedge system diverts oncoming traffic to either side of manhole work area.

Dry Chemical Extinguishers

By WILLIAM F. O'CONNOR

Modern developments make dry chemicals highly effective in extinguishing certain type fires

AS A RESULT of improvements during recent years, dry chemical has earned its rightful place in the family of fire extinguishing agents. It has certain limitations, but its advantages are noteworthy, especially for fires involving ether and other volatile liquids.

Ether under pressure suddenly bursts from a defective flange in overhead piping and floods the ground. It flashes into flame and intense heat is radiated with maximum temperature being reached in less than 20 seconds. After a quarter of a minute of burning, an extinguisher is turned on the fire. Thirty-seven seconds later the fire is out!

Industrial fire fighters readily admit that a fire involving as flammable a liquid as ether, wherein the liquid is burning on the ground, at a flange eight feet overhead, and in the air as it pours to the ground, presents a difficult problem. To effect the control described in the preceding paragraph is a very satisfactory accomplishment, for although the fire described was actually one of a series of practical tests, it could have occurred just as easily in an industrial plant.

The agent that extinguished this fire was modern dry chemical, which bears less resemblance to the " dry powder" of the turn of the century than the modern automobile does to the horseless carriage. Of course, an extremely important factor was that the extinguisher was in place and ready for use before the fire occurred. There is no time available for bringing extinguishers to ether fires.

Ether is an important solvent and as such is being increasingly used in industrial processes in large quantities, far exceeding the problems which are presented when it is handled in one pound lots in a laboratory. Due to its high volatility (it boils at 95°F), low ignition temperature (360°F), an ether fire, generally speaking, is more difficult to combat than most fires in more common liquids. Almost instantaneous maximum temperature, extremely high radiated heat and numerous flash backs are three of the practical manifestations of these characteristics.

DR. WILLIAM F. O'CONNOR is Associate Professor of Chemistry, Fordham University, New York City. This paper has been condensed from a paper presented at the Twentieth Annual Convention of the Greater New York Safety Council.

Two types of dry chemical fire extinguishers. Larger extinguishers are available in wheel models and for stationary installations. Illustration at left by Ansul Chemical Company; at right by Pressurelube Incorporated.

New Materials, New Hazards

Early in 1942 when the Synthetic Rubber Program was just getting started, it was realized that we were confronted on a large scale with two new fire and explosion hazards. Butadiene, one of the ingredients in the GR-S type of rubber, was never produced in this country on a large scale before. In a short time it was to be produced at a rate of several thousand tons a day. One of the by-products in the production of butadiene was an oil containing about 40 per cent ether. This oil also contained other light components and some heavier components which give it additional fuel value. Like butadiene, this material had never been handled before in large quantities and so we were without experience in the fire fighting techniques to be used against it.

While Koppers Company, Inc., was designing and constructing this huge $62,000,000 Butadiene-Styrene plant just outside of Pittsburgh for Rubber Reserve Company, field tests were being conducted to determine the best extinguishing agent for these two materials. Quantities of crude butadiene were obtained from the various pilot plants as well as

samples of the by-product oil. These were ignited under different conditions and the various agents and methods were studied.

As a result of these tests, which comprised an overhead pipeline fire, vertical tank and trench fires, it was quite obvious that the dry chemical extinguishers were far superior to the other types for both extinguishment and control of the new type fires. It was decided that these extinguishers should be uniformly distributed throughout the buildings and the plant so that every section of a building would be within 25 feet of an extinguisher. Furthermore, units were placed in repetitive and identical locations in various buildings so that all employees would become conditioned to their location and in time of fire could reach them instinctively.

As a result of this concept of distribution we had in the entire plant the following dry chemical extinguishers: 250-15lb.; 100-30 lb.; 7-150 lb.; 36-350 lb.

After the plant was built and in operation for a few years our decision as to fire extinguishers was confirmed. While hundreds of tons of butadiene were being produced daily, the fire loss was unbelievably low. Fires occurred at a rate of 150 to 250 a year, but the fire loss on the $60,000,000 plant ranged between $500 and $1,500.

I consider such performance ample vindication of the selection of dry powder as the extinguishing agent and the strategy of location of these extinguishers. It is really impressive when we consider the magnitude and the newness of the hazards involved and the fact that over 95 per cent of all these fires were extinguished not by firemen, but by plant operators as part of their regularly assigned jobs. It is all the more impressive when we consider the fact that during the process several of the materials and intermediates are spontaneously flammable in contact with air under operating conditions.

Since a fire in ether or other highly volatile liquids generates such a tremendous amount of heat, complete reliance for fire fighting can rarely be placed in a municipal fire department which at best cannot be on the scene for several minutes after the fire starts. The situation is saved or lost in the first few seconds, depending upon the actions of the individuals closest to the scene when the fire breaks out.

Even with the best training program, these men are not professional fire fighters. Therefore the extinguishing medium must be simple to operate. If possible, it

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NSC PROFILES

GEORGE A. JACOBY

GEORGE A. JACOBY, director of the personnel services section of the personnel staff of General Motors, is vice-president for industry of the National Safety Council.

Since the organization of the Council's Industrial Conference, Mr. Jacoby has been its chairman. Under his leadership, the conference has developed into a powerful and effective force for accident prevention in industry.

Mr. Jacoby was born in Pleasureville, Ky., in 1904, and graduated with an A.B. degree from Georgetown College in 1924. He later attended Columbia School of Business where he received an M.S. degree.

In 1925 he became associated with the Irving Trust Company of New York where he was appointed assistant secretary in 1929 and later promoted to assistant vice-president.

He joined the Buick Motor Division of General Motors in 1941 and was assistant personnel director when he transferred to the General Motors central office in 1945. As a member of the General Motors labor relations staff, he represented the corporation in labor disputes before impartial umpires.

Mr. Jacoby was appointed to his present post in 1946. The section which he heads includes in its field of activities aid to the various divisions of the corporation in policies and problems involving health maintenance, safety, employment, plant protection, veteran reemployment, cafeterias, unemployment compensation and various types of employee services.

In 1948 he served, under appointment of the governor, as a member of the Michigan Employment Security Advisory Council. He is also a member of the social security committee of the Chamber of Commerce of the United States.

He is past president of the Columbia University School of Business Alumni Association and a former director of the Columbia Alumni Federation, which awarded him a medal for his distinguished alumni service. While in Flint he served as president of the Young Men's Christian Association.

In addition to being vice-president for industry and chairman of the Industrial Conference, Mr. Jacoby is a member of the National Safety Council's Board of Directors.

Methods of Locking Out Electric Switches

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1. This data sheet discusses the methods used to lock out electric switches on machine tools or equipment and the safe practices that should be followed.

2. If switches are not locked out, the hazards to men working on equipment are numerous. They may receive electric shocks and burns or get their hands or other parts of their bodies caught in machinery if it is accidentally started by another workman. Injury to others working on adjacent machines or equipment and damage to the equipment itself may also result.

3. Maintenance workers, particularly, are exposed to these hazards. Maintenance work follows no set pattern. Each job differs from every other. Although in a larger plant many crews perform similar types of jobs, each crew may work under a different supervisor with his own ideas as to what constitutes safe practice.

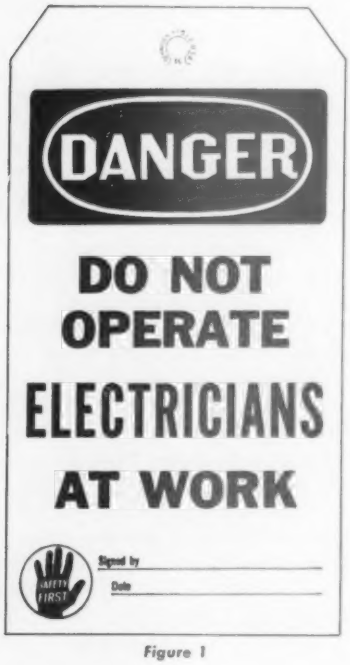

Figure 1

This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety codes; federal laws; insurance requirements; state laws, rules and regulations; and municipal ordinances. Reprints of all Data Sheets are obtainable from National Safety Council.

4. It is therefore essential for a plant to establish not only a basic uniform safety policy, but also a policy covering the locking of switches and the clearances to be given when two departments are involved.

5. For example, when maintenance and production men must work on a piece of equipment, one company has the electrician or maintenance man remove the fuses and the production man who is to enter the agitated kettle, rotary drier, extruder, or centrifuge lock off the switch. The supervisor then checks to determine that all requirements of the policy have been complied with and gives the production man clearance to work on the equipment.

6. A large percentage of maintenance work is done on equipment or machines which use electricity as either the primary source of power or as the control for other sources of power (steam, water, gas, oil). It is therefore extremely important that the maintenance worker be provided with a more positive method of locking out electric switches than the common methods discussed below.

Common Methods

7. Several methods—posting of warning signs, use of "hold" cards, and removal of fuses—are commonly used to protect the worker and equipment. (See figure 1.) However, none of them provides positive protection.

8. Decals, stickers, or warning signs should be placed on all control switches indicating that caution must be used and that switches must be pulled and locked before machinery or equipment is oiled, adjusted, or repaired. (See Figure 2.) These signs to warn repairmen of potential danger are needed because of changes in personnel or forgetfulness on the part of the men.

9. This form of protection is merely a reminder and should not be the only method used because men frequently fail to read and pay attention to the signs, obliterated decals or stickers often are not replaced, and signs may fall off controls or become lost.

10. Another method, not considered to be positive protection,

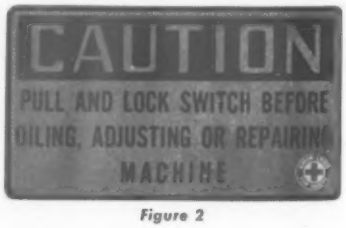

Figure 2

is to tag the switch gear in an "open" position with "Do Not Operate" tags or "hold cards." The tags show the date and time, and indicate that work is being done on the equipment and that the equipment is not to be operated until the tags have been removed by the repairmen whose signatures appear on them. If repairs are not completed at the end of the shift, new tags should go on at the beginning of the next shift and the old tags should be removed.

11. Each man who is to work on the equipment should secure his own card on the control device and remove it when the work is completed. Power machinery is not to be started until everyone who has been at work on it has removed his card. No man is supposed to remove another's card even though requested by him to do so.

12. Some of the objections to this method are that tags may drop off, a worker may remove the wrong tag, the worker depends on others to respect his tag and not close the switch, or men may fail to use tags at all. Proper training of the men and rigid enforcement of the rules are needed to control this method.

13. A method used in some plants for worker protection is to remove fuses either at the main or within the switch gear itself. This practice is not foolproof unless a qualified electrician opens the switches or circuits prior to fuse removal. In addition, the fuse box must be constructed so that it can be locked and tagged. Otherwise, someone may insert spare fuses left in the box or may substitute jumpers.

Figure 3

14. Other hazards are that unauthorized men may fail to remove the proper fuse or branch fuse so that the original circuit is still alive, or may incur flash burns from removing fuses under load and shocks from accidental contacts.

15. Experience has shown that the only positive method to protect repairmen from machine accidents is to lock the main machine controls in an "off" position. Some equipment is manufactured with flush or bolted-on locks having the approval of the Underwriters' Laboratories. Where these locks are not installed, individual locks should be used, with each worker responsible for placing and removing his own. This method, however, must be used in accordance with a strict safety policy or even it can be ineffective.

Use of Padlocks

16. It is recommended that each worker use only a combination lock or a substantial padlock that is tamperproof and operated by only one type of key. As a means of identification, locks may be painted various colors to indicate types of craft or to signify different shifts. Each lock should be stamped with the employee's name or clock number, or a metal tag with the necessary information should be attached to the lock.

17. There should be only one key issued to the workman for each lock. The supervisor should keep a master list of key numbers and the extra key to each lock in his department. Even though a workman's key seems lost beyond recovery, the supervisor should not loan his key.

18. In case of emergency, the supervisor should use the extra key himself. Then the old lock and the extra key should be destroyed and replaced by a new lock. On some types of locks the tumblers can be changed by a locksmith and two new keys cut to fit.

Fig. 4. Courtesy General Motors Corp.

19. In the case of combination locks, only the immediate supervisor, or whoever determines the company's or department's safety policy, should have an extra copy of the combination.

20. Each lock must be different from every other lock used by the maintenance group. It is recommended that the company purchase the locks from a reputable lock company with the request that no two locks be the same, and then as an added precaution check the patterns of the keys.

21. Purchase of the locks by the company will preclude the possibility of workers' buying cheap locks which can be easily opened or broken. Master key locks are

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In the lobby of the new offices Nancy Nelson, receptionist, directs a visitor to the staff member he wishes to see.

425 NORTH MICHIGAN

THE headquarters staff of the National Safety Council can now announce with a sigh of relief that it is actually settled in its new home on the fifth floor of the Mandel-Lear Building. The lighting and ventilating engineers, the decorators, the painters, the wall punchers and all the other craftsmen have finished their work. The smell of fresh paint, the noise of sheet metal fabrication, and other distractions are gone and the staff members can at last concentrate on their work under comfortable and efficient conditions.

Four-twenty-five North Michigan Avenue, Chicago 11, is the Council's fourth address since it began operation late in 1913. Starting modestly in two rooms at 208 South LaSalle Street, the Council has continued to outgrow its quarters periodically.

Early in 1919 the offices were moved to 168 North Michigan Avenue, where they remained until the end of 1925. The next move was to 108 East Ohio Street, three blocks from the present location. Then in March 1930 offices were

The West Room, where much of the program and technical staff of the Council is located.

President Ned H. Dearborn (right) and General Secretary R. L. Forney confer in the president's office.

The Public Information Department. The Publicity, Editorial, Art and Poster Divisions occupy this space on the north side of the building.

The Council Library each day fills a large number of requests for information on a wide range of safety subjects.

Noon in the staff lounge. Lunches are served and vending machines supply milk, soft drinks and other refreshments.

Floyd Van Atta, industrial hygienist, conducts a session of a member training class. More meeting rooms are now available for conferences.

established on the ninth floor of the Civic Opera Building at 20 North Wacker Drive, which was to be the Council's home for the next 20 years.

The Mandel-Lear Building is located near the Tribune Tower, and from Michigan Avenue it is reached by a bridge alongside the Tower. Directly across the avenue is the Wrigley Building, whose floodlighted white terra cotta walls stand out as a brilliant highlight in Chicago's skyline by night. Across the Chicago river which bounds NSC headquarters on the south are the towering London Guarantee and Accident Building and the 333 North Michigan Building, both impressive for their architecture.

Modern in every respect, the Council's new quarters provide 63,000 square feet of floor space. For the first time in many years it has been possible to locate all departments on one floor. The walls are painted in chartreuse color. Fluorescent lighting provides 50 footcandles of light on each desk, and a specially designed ventilating system provides filtered air to all sections of the office.

Asphalt tile flooring finished with a high coefficient of friction has been installed throughout. Channels in the floor permit changes in the wiring system with a minimum of disturbance and tripping hazard.

Ceilings in the office space have been treated acoustically to absorb a large proportion of the decibels from typewriters and dictaphones. The building is protected by automatic sprinklers.

Conferences inevitably play an

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Paper and printer's ink are indispensible in the promotion of safety. Here is one section of the Council's print shop.

SHOE FITTING with X-RAY

By HAROLD BAVLEY

THE laymen's knowledge of X-ray has been gained largely from personal experience at hospitals and doctors' and dentists' offices. Some have seen it used by industry for testing materials or for experimental work. The hazards due to the use of X-ray equipment and the requirements for their control are well understood by the professional and research worker. It has been assumed that X-ray machines used by retail shoe and department stores, such as the fluoroscopic shoe-fitting machine, would be similarly protected and properly operated.

However, the possible injuries resulting from the misuse of X-rays by inexperienced operators have been so dramatized that the merest fact may cause almost hysterical fear. To avoid such a situation the Boston Better Business Bureau requested the Massachusetts Department of Labor and Industries, in cooperation with the Department of Public Health, to conduct a survey to ascertain whether hazards exist to employees or to the public occasioned by the use of X-ray fluoroscopic viewing machines for the fitting of shoes.

In a recent article in *The New England Journal of Medicine*, Dr. L. H. Hempelmann states, " . . . it may be said that the type of radiation injury most likely to result from the unsupervised use of low-voltage fluoroscopes in shoe stores is the malformation of the feet of growing children. Such deformities may occur in the absence of X-ray reactions of the skin. Skin damage of the feet of customers and injury of the blood-forming tissues of store employees are possible consequences of the misuse of the shoe fitting fluoroscopes."

It was estimated that there are approximately 400 X-ray shoe-fitting machines in Massachusetts, with approximately 1,500 employees using these machines. It was impossible to even roughly estimate how many customers were being examined with these machines. A group of 15 machines composed of different ages, types and models was selected and surveyed. These machines were located in the department stores and retail shoe stores in downtown Boston.

City Codes

In addition, information was obtained from the manufacturers of three machines concerning their products. The public health departments of New York, Detroit and Chicago were contacted. Information was requested from local hospitals concerning cases of injury by exposure to X-rays. Industrial hygienists of insurance companies also were consulted. No record of harm from X-rays were elicited from any of the hospitals. One serious case of radiation damage was reported by an insurance company, involving a shoe model who was exposed to excessive radiation and received such a serious radiation burn that it necessitated amputation of her leg. New York and Detroit have adopted codes for X-ray fitting of shoes.

All machines were of fundamentally the same construction. An X-ray tube is located at the base of the machine with its beam directed upward. This beam in passing through the shoes and feet of the customer strikes a fluorescent screen, producing an image which can be visualized by both the customer and the sales person by means of eye pieces located at the top of the machine. The distance between the focal point of the tube and the feet varied from 3 to 8 inches. All machines are supplied with an aluminum filter approximately 1 mm. thick, located on top of the foot rest and installed for the purpose of filtering out the soft radiation. All machines have automatic timing devices. Some of the newer machines are equipped with three switches to vary the intensity of radiation, the lowest being intended for children, medium for women, and highest for men.

Measuring Instruments

Measurements of instantaneous scatter radiation due to leakage were made with the Landsverk electrometer and the Victoreen survey meter. Measurements of the integrated dosage received by employees operating these machines were made with the Landsverk dosimeter. The response by these instruments to the ionization is proportional to the potential body damage.

The Victoreen survey meter is extremely sensitive and reads the rate of the ionization effect in milliroentgens per minute. The Landsverk electrometer reads this effect in milliroentgens per hour. The Landsverk dosimeter reads the accumulated dose in milliroentgens.

Most of the machines leaked excessively. On the sides of the machine 18 inches above the floor and 9 inches from the machine, the range was found to be from 1 milliroentgen per hour to 175 milliroentgens per hour, the average being 60 milliroentgens per hour. On the customers' side at a

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HAROLD BAVLEY is Engineer, Massachusetts Department of Labor and Industries, Division of Occupational Hygiene. This article, which has been condensed from a paper presented at the 29th Annual Safety Conference, was prepared in collaboration with DR. CLARENCE C. MALOOF, physician, and RICHARD I. CHAMBERLIN, engineer, Division of Occupational Hygiene.

Courtesy Sharp and Dohme

Safety Eye Wear

Good Practice and Malpractice

By HEDWIG S. KUHN, M.D.

THE Joint Commission on Occupational Ophthalmology is receiving increasing evidence that substandard safety eye wear is being used in numerous plants throughout the country. This fact has been brought to the attention of the Committee by its members in travel and visits to many plants; in conferences with various sections of the National Safety Council; and by individual safety groups in the United States.

Protective eye equipment must be standard; it must be designed to meet specific hazards; it must be made according to accepted specifications and possess a stated quality of materials. Otherwise such equipment cannot and does not properly protect and serve the interest of the employee and the employer. A special and very representative group worked out minimum recommended practices as published in NATIONAL SAFETY NEWS (July 1947, page 33).

It has been found in the main that small plants without benefit of safety personnel or professional eye consultants have too often been influenced by nonprofessional factors in choosing safety eye wear. They have not been fully aware of the importance of strictly adhering to the standards and practices formulated by experts in the field.

It is frequently difficult to get the cooperation of employees in observing safety rules, and occasionally an employee may express a liking for a type of eye wear which is not always approved merchandise. Here the safety man, in order to protect the employee with some thing he *will* wear, occasionally yields. This is bad practice as it cancels out prestige of authority, general safety rules, and carries by word of mouth to other plants, producing unrest.

Unsafe protective eye equipment sometimes gets into a plant because an outside personal contact (friend or relative) may want to introduce merchandise of inferior quality which management and/or the safety man may not even realize is inferior.

Economic pressure and false economy also influence procurement of protective eye wear. Persons responsible for safety programs should not be forced by management to purchase materials solely on the basis of price, if this means obtaining substandard equipment.

The man responsible for safety in industry is the key to a successful and ethical program utilizing protective eye wear. When his responsibility for specifying safety requirements is subordinated to other factors, or he permits dilution of his responsibility for safety requirements, the basic principles for safeguarding employees are tragically jeopardized.

The Joint Committee would like to ask every professional eye man who has any relationship to industry to support, to urge, to police (if necessary) management's insistence on the use of *standard* quality protective eye wear.

The support so given to safety, ethics, and plant procedures is of tremendous value. It will help the National Safety Council, the ethical optical companies and those manufacturers of industrial safety equipment also handling standard safety eye wear to demonstrate conclusively to management and/or to their customers that quality merchandise is essential; that the profession stands behind its use, and that insistence on standards is not merely a commercial sales argument.

DR. HEDWIG S. KUHN, a practicing ophthalmologist in Hammond, Indiana, with a large industrial clientele, is secretary of the Joint Committee on Occupational Ophthalmology (American Academy of Ophthalmology and Otolaryngology and the Section on Ophthalmology of the American Medical Association) and chairman of the National Safety Council's Committee on Industrial Eye Protection. This article appeared originally in the Transactions of the American Academy of Ophthalmology and Otolaryngology, March-April, 1950.

Trade Association Campaign Opens

Regional meetings to fire opening guns in new attack on safety problems of small business

By H. F. REINHARD

This month will see the opening of a campaign to enlist America's trade associations in the fight against accidents. The first of a series of regional meetings for association executives will be held in New York City on September 27 at the call of the Associations Committee of the Industrial Conference of the National Safety Council.

The purpose of these meetings will be to:

1. Give association executives the facts on the accident problem as it affects them and their members in terms of operating economy and public and labor relations.

2. Demonstrate that associations can do an effective and profitable job for their members in the field of accident prevention. Results of programs already conducted by a number of associations will be presented as evidence.

3. Develop plans for the cooperation between the various associations and the National Safety Council.

A great deal of hard thinking and hard work has gone into the planning of these meetings. At the President's Industrial Safety Conference and in the discussions of the Industrial Conference of the National Safety Council, facts have been presented to show that approximately two-thirds of the nation's industrial injuries occur in the smaller businesses—those which ordinarily do not have effective safety programs and which are not usually affiliated with any safety organization.

From these discussions came the conviction that the trade associations were uniquely qualified to bring the safety story to their member firms. The highly successful programs of a number of associations demonstrated that the job could be done with great benefit to the members, the industry and the association.

The Industrial Conference established the Associations Committee in February, 1948. We worked in close cooperation with the staff of the National Safety Council, developing a draft report. Then we called upon 25 associations to give us the beneft of their ideas and criticisms. All cooperated willingly, and the report which appears below is a statement of policy which we all feel is a sound foundation for the intensification and broadening of the cooperation between trade associations and the National Safety Council.

In our regional meetings, this report will provide a starting point for discussion and planning. I sincerely believe that from the efforts will come action that will materially improve the safety picture in our smaller business concerns.

I. Safety Services — An Association Function

A sound and practical safety program is a "natural" for trade and industry associations and professional societies.

Many associations are finding sponsorship of an accident prevention program a practical and extremely valuable function for the benefit of both their members and the public.

Employers in all industries have learned that preventable accidents represent an unnecessary burden of cost—inflict needless suffering and economic hardship upon workers and their families. By reducing accidents they can:

Reduce costs—increase efficiency
Improve employee relations
Improve public relations in their communities

II. Here is the Problem

How serious is the accident problem? Consider first accident costs, in terms of both financial losses and human values.

Each year there are an average of 16,000 occupational fatalities and 2,000,000 occupational injuries*. Another 32,000 are killed away from their jobs. Accident losses from injuries on the job are estimated at 2⅔ billion dollars a year or about $45.00 per worker.

Association members pay most of the accident costs because they represent a large majority of American industry.

Insurance does not relieve business of the costs of accidents. The payment of premiums for workmen's compensation and public liability insurance simply transfers to an insurance carrier the job of disbursing funds to pay the direct expense of medical treatment, compensation to injured workers or indemnity for injuries to members of the public. But these direct losses are borne by industry, just as are the indirect losses, estimated at from two to six times the direct or insurable costs. These indirect losses include:

Time lost by injured workers, their supervisors, and other employees.

Damaged equipment and materials.

Penalties and loss of customer goodwill through delay in completing orders.

Hiring and training replacement workers.

In addition, the conditions responsible for accidents cause operating losses that may be greater than the accident costs. Cases on record have shown operating economies of from 30 to 60 times the

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H. F. REINHARD is Consulting Engineer, International Acetylene Association, and Chairman, Associations Committee, Industrial Conference, National Safety Council.

*Occupational fatalities and injuries are made up of figures from trade, service, manufacturing, public utilities, transportation, agriculture, construction, and mining, including quarrying, oil and gas well industries.

(Fiction)

DEATH IN THE NIGHT

By BILL ANDREWS

September 6, 1950

The day I retire, I'm going to tear the telephone out of the wall!

I was feeling fine last night. We hadn't had a lost-time accident in 32 working days. Our new safety campaign, with all its whoopla and showmanship, had obviously caught hold. Foremen and workers alike were talking it up, pressuring their recalcitrant brethren to get in line on housekeeping and safe practices.

The campaign apparently had an effect beyond the plant gate. At any rate, yesterday produced only two cases of abstenteeism in any way chargeable to Labor Day accidents—one sunburn case and one sprained ankle.

So we celebrated last night with a steak fry in our back yard. Our advertising manager, Bill Jordan, came with his wife, and my assistants, Jim Mason and Jack Bell, brought their girl friends. It was a good party, with fast, easy talk after sunset.

Then the phone rang. I didn't have any premonitions—only the fear that I've known every time the phone snarled these last dozen years. In the dim twilight I could see the echo of my fear in Jim and Jack—a girl's hand quickly dropped, a head lifted from a feminine shoulder.

Only plump, easy-going Bill Jordan didn't react. He went on with a funny story as I walked across the lawn to the back door. He was just delivering the tag line of the story when I returned, and three of the girls laughed loudly. I had killed the story for Sue, Jim and Jack, all of whom watched me come toward them, all of whom had probably been watching the door since I went in.

I said, "Sorry, but Jim and I have got a job to do. The rest of you stick around."

Jack Bell got up and asked, "Do you need me, boss?"

I looked at the little brunette he'd left sitting on the hammock, and I remembered the orders from the Naval Reserve telling him to report next Monday. "No," I said. "I think Jim and I can handle it."

He looked hard at me, wanting to know whether it was a fatal, not wanting to ask and spoil the party. I didn't say anything, but he saw the answer in my face. Sue saw it, too, and gave a little gasp.

Jack said, "Mary and I will be heading home in half an hour or so. I'll stop by the plant after I take her home." And I heard Jim Mason start his car as I made my apologies and goodnights to the other guests.

As he wheeled down toward the plant, I gave him what little I had. "Fatal. Asphyxiation or poisoning. Maintenance man. The south pump room."

There was no activity at the first aid building, so we drove to the pump house. There was a police car near the door, inhalator equipment lying unused on the ground, a cluster of men standing around something dark on the ground just outside the entrance. Out of the group stepped Makie, the night general foreman.

"We gave him artificial respiration as soon as we found him and got him outside," Makie said. "The cops came along and helped, till the doc pronounced him dead. It's Louis Gorvan."

The doctor joined us. "At a guess, I'd say carbon-monoxide poisoning. Dead perhaps two hours, perhaps only an hour. A bruise on the scalp, probably from the fall as he collapsed." I walked over to the body, looked down at the shoes sticking out from under the blanket, looked at the grease and rust stains on the cuffs of the overalls. The shoes were new, I could tell from the almost unscuffed soles.

"Who found him?" I asked.

A skinny, middle-aged watchman stepped forward. "I saw him through the window. When I opened the door, I pretty near choked, but he was just a few feet away, so I held my breath an' dragged him out."

I walked to the window of the pump house, and looked in. Jim Mason was inside, a line around him, held by a couple of men

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CAUSE AND CURE

These examples are from reports of actual accidents. They list the causes and the steps taken to prevent recurrence

Conked

Carpenter was removing scaffold timbers when 4-by-4 upright, which had been left standing, toppled over, bruising head and causing 16 days lost time.

Correction: All employees in construction operations were required to wear hard hats; carpenters and foremen were told to station helpers to hold unsupported uprights until removed.

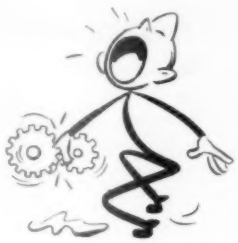
Wrong Goggles

Machinist was leveling a piece of steel plate in a shaper vise, using a 2-pound hammer, when piece of mill scale flew by edge of goggles and injured eye.

Correction: Employees engaged in this type of work were ordered to wear safety goggles with side shields, chipping goggles or face shields instead of regular type.

Hand Grinder

With crane in operation, fireman was wiping off front of crane cab with rag, which caught in gears and pulled in hand, cutting off three fingers.



Correction: Victim's 11 years experience on job prompted foreman to give safety refresher courses for all old hands in shop, emphasizing lock-out of machines during repairs.

Premature Start

Cement plant employee had finished work on interior of air separator and was climbing out when someone started machine, causing fatal injuries.

Correction: Greater emphasis was placed on locking out of machine switches for repairs in the training program and foremen were instructed to check before unlocking switches.

Loose Shoring

Green lumber was used to shore up ceiling after soaking of floor above by sprinkler; shrinking of upright piece caused it to fall on girl worker.

Correction: Maintenance men were instructed to nail and cross-brace all temporary shoring, using wedges where necessary, to prevent such occurences.

Wrong Ladder

Body builder stepped down from roof of trailer to top of step-ladder which toppled over, throwing him and causing broken wrist and concussion.

Correction: Employees were warned against using makeshift equipment; were told to use ladders that extend above roof and provide hand holds when descending.

"See Us in Chicago"

38th National Safety Congress

160 sessions to present 700 speakers

SAFETY will be headline news October 16 to 20 when Chicago again welcomes the National Safety Congress and Exposition. This, the 38th Congress, boasts a program which will interest men and women in all branches of safety throughout the nation. More than 700 program participants will address the 160 sessions which make the Congress the top safety attraction of the year.

The Congress will open with the Annual Meeting of Members and the election of officers of the National Safety Council in the Grand Ballroom of the Stevens Hotel. This session will have as its principal speaker, Wallace B. Phillips, founder and chairman of the Royal Society for the Prevention of Accidents, London, England.

Registration and information desks will be located in the Stevens, Congress, La Salle and Morrison hotels. Nearly all of the industrial sessions will be conveniently grouped together in the Stevens and Congress hotels.

The Safety Exposition with its complete coverage of all phases of safety equipment has grown too large for the Stevens Exhibition Hall. This year the exhibition will be a double-header with interest-packed shows in both the Exhibition Hall of the Stevens and the Casino Room of the Congress.

The always popular and well attended early morning sessions will be conducted by Vernon G. Schaefer, Ph.D., staff psychologist, George Fry & Associates, Inc.; Consulting Management Engineers, Chicago and New York. Dr. Schaefer has a country-wide reputation for teaching safety men the secret of getting their message across to the worker. A speaker at both the 1940 and 1942 Congresses, Dr. Schaefer will have as his subject, "Speaking with People." He speaks from broad experience in business in the Midwest and as professor of psychology at the Pennsylvania State College. In addition to his appearances at National Safety Congresses, he has addressed regional safety meetings and conducted a course of lectures at the Bureau of Mines in Pittsburgh which was sponsored by the Western Pennsylvania Safety Council in cooperation with the Extension Department of the Pennsylvania State College.

The early morning sessions will meet Monday through Friday in the Grand Ballroom of the Stevens Hotel at 8:45 a.m.

* * *

Henry J. Taylor, radio commentator, economist and journalist, will address winners of the National Safety Council's National

Most of National Safety Congress week activities will center on this section of magnificent Michigan Avenue (opposite page). Stevens Hotel is large building at left (facing Grant Park). New home of National Safety Council is in square brick building at right of photo.

Fleet Safety Contest at a Victory Award luncheon in the Grand Ballroom of the LaSalle Hotel in Chicago, October 19. The luncheon, to be sponsored by General Motors, will climax sessions of the Transit and Commercial Vehicle sections.

Mr. Taylor, heard every Monday night over the ABC network,

is known for his penetrating analysis of both domestic and foreign news. He was a successful businessman and economist before radio claimed his talents as a correspondent and commentator.

This is the third consecutive year that General Motors has participated in the Congress program as sponsors of the Victory Award luncheon.

* * *

With the nation again girding for battle, many will be interested in the safety aspects of jet and rocket engines. At a joint meeting of the Aeronautical Industries Section and the Air Transport Section on Wednesday afternoon in the Stevens Hotel, Mark Dunnam, chief, Rocket Propellant Unit, Power Plant Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio, will consider the "Hazards Involved in the Use of Rocket Engines;" and Col. G. E. Teal, special projects officer, Office of Secretary, Department of The Air Force, Washington, D. C., will

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CONGRESS MAP

(Numbers refer to hotels)

9 Atlantic	11 La Salle	15 Allerton
8 Bismarck	13 Midland	21 Croydon
4 Brevoort	12 Morrison	19 Devonshire
6 Chicagoan	3 Palmer House	18 Eastgate
2 Congress	10 Planters	16 Maryland
7 Hamilton	1 Stevens	14 St. Clair
5 Harrison	17 Alexandria	20 Seneca

The SAFETY VALVE

Along The "Boul Mich"

This North Michigan Avenue location has a lot in its favor. It is reasonably close to the Loop and the view is hard to beat. From the different sides of No. 425 you can see: Lake Michigan, the Chicago River, the Avenue, and a railroad spur and some warehouses.

Nobody would call our new home an architectural gem but we have some distinguished neighbors. Grouped around the impressive Michigan Avenue bridge and the historic site of old Fort Dearborn are some famous commercial buildings.

And Michigan Avenue is perennially fascinating. To me, it ranks next to Princes Street in Edinburgh. But what old world city has anything to match Mr. Woolworth's glittering air-conditioned emporium a few blocks north of us?

Years ago the NSC had its home office in these parts and I remembered the intriguing spots for noon-hour walks. Merely watching the passing throng can be absorbing. And just a few steps from the Avenue takes you back into that period between the Chicago Fire and the turn of the century. There are old houses—some neglected and dingy, some still trim and well maintained, and a few reeking with departed grandeur.

Hemmed in by tall buildings is a crumbling brownstone mansion that once housed a prominent Chicago family. Its basic lines aren't bad but the builders piled on decorative excrescences with utter lack of restraint. In its day it was the last word in elegance and many of the great and near great were entertained there. Now the place suggests a faded, overdressed dowager with bags under her eyes.

One of these days the wreckers will start getting it out of the way for an impersonal hotel or office building. Progress is painful to those addicted to nostalgia, but inevitable.

Among the pleasant things around here are the occasional oases of trees and grass in the desert of brick and concrete. And we are grateful to the citizens who have planted elms on the parkways north of Ohio Street.

. . . . From the standpoint of many of us commuters, the chief drawback to this location is its distance from the North Western Station.

North American Statesman

The death of William Lyon Mackenzie King, prime minister of Canada during World War II, recalls his services to his country, to the British Commonwealth, and to the world. He regarded the continent as a unit and cordial cooperation between countries was one of his aims.

To me, his passing also recalls a summer afternoon in 1911 when people from three southern Ontario counties gathered at Simcoe for a political picnic. Sir Wilfrid Laurier, picturesque chieftain of the Liberal party, with three cabinet ministers and the local candidate for parliament, were there to tell the public about the millenium of prosperity that would follow a Liberal victory and tariff reciprocity with the United States.

In these days of radio and TV it seems amazing that folks used to travel miles to hear campaign oratory. In high school days politics fascinated me, and among my heroes Sir Wilfrid ranked not far behind Honus Wagner.

On the platform, Sir Wilfrid was something to remember. His white mane, ascot tie and frock coat were important bits of scenery. His voice was pleasing and eloquent, and emphasized by just the right gestures. Even in the rough and tumble of an election he kept his gracious good humor. You felt that he loved all mankind — including the Tories and Orangemen.

Mackenzie King, the boy wonder of the Laurier cabinet, was the dullest speaker. He spouted cold facts and figures while the others supplied the fireworks. Probably nobody in the crowd suspected that the 36-year-old Minister of Labour was a future leader.

Named for his maternal grandfather who led an ill-fated revolt against an oppressive oligarchy in 1837, Mackenzie King was a non-violent reformer. He had studied economics and political science at Harvard and the University of Chicago.

His career as a statesman has overshadowed his valued work in labor relations. One of his important services to the USA was as advisor to a large corporation in handling its labor problems. Into a troubled situation he brought a note of understanding and fair dealing that had a far-reaching influence.

Power in Repetition

On countless barn roofs throughout the South there are signs urging the tourist to "Visit Beautiful Rock City Atop Lookout Mountain." On the first trip to Chattanooga our resistance held out. We visited the mountain but passed up Rock City.

But on a second trip constant repetition of the sales message finally wore us down. At some point along the road it may have been one particular sign that tipped the scale.

In safety publications we are constantly exhorting foremen and others to keep on telling them. The cases are not exactly parallel but there is no denying the power of persistence.

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To utilize the full cleaning capacity of your scrubbing machine—to get floors *film-free clean* in minimum time—choose a cleanser that's specially made for machine-scrubbing. *All Finnell Cleansers are.* And there's a type for every need, including *Setol,* the mineral oil solvent for cleaning oily wood floors, and *Finola, the Original Scouring Powder,* for heavy duty scrubbing of smooth, hard-surface floors.

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BRANCHES IN ALL PRINCIPAL CITIES

You Can Help Your Schools And Your Industry

By WAYNE P. HUGHES

THERE are some 32,000,000 young people attending school in the United States. From the long-term point of view, it is to them that we should devote all possible attention in our efforts to reduce accidents.

In our schools we have the ideal vehicle with which to conduct a child and youth safety education program. The school is the best organized agency reaching the largest percentage of our population. Out of every 4½ persons one is in school. In the formative years (5 to 17), 85 per cent are in school.

The school safety program is the concern of every safety-minded man and woman. The direct effect of a good school program is not only in child safety but extends over into industrial, home, farm, traffic and public safety. Our boys and girls in school carry their safety teaching to their fathers and mothers at home.

To illustrate, let me cite a personal experience. Those of you who are parents will recall similar experiences of your own.

A few years ago, while I was attending school in New York, Mrs. Hughes and our son stayed with her father on his farm in northern Indiana. At the time, our boy was in the fifth grade and rode to and from school in the school bus.

Between terms, I returned to Indiana for a short visit with the family. One afternoon the lad rode with me into town. As we were driving along this country road, I overtook and was about to pass another car. Following a long-established practice, I waited until I was close upon the car ahead before giving him the horn signal that I wanted to pass.

I noticed his car jerk suddenly and swerve somewhat on the loose gravel but thought nothing of it as I continued down the road.

Several minutes later a young voice said, "Say, Pop, are you a safety expert?"

"Yes, son, that's what my friends say."

Needless to say, I was not expecting his next remark. "You sure could take some lessons from our school bus driver. You almost caused a wreck. Our driver would have blown his horn farther back."

From that day on, when that young man is in the car with me, I have been particularly careful about my driving.

As parents we have a greater concern for the welfare of our children than we do for our own welfare. As a father, I want my child to get the fundamentals of an education from the school. More important, however, I want to be sure that my child will return from school each day, sound in body.

I should be concerned if he failed in one of his subjects but not nearly so concerned as I would be if, because of some failure of the school, an accident caused him to be a cripple for the rest of his life.

The purpose of safety education is to prevent crippling and fatal accidents to children and youths. It is time for all of us—parents, school people, national, state and local agencies, and industry—to forget our prerogatives and plan and work together. There is much for all of us to do and we are not going to get the job done unless we join forces.

The following challenging facts should indicate the seriousness of the accident problem:

In the nine years following 1938, non-accidental deaths of children (except infants) were decreased by three-fifths; accidental deaths by only one-tenth.

Accidents kill more children (ages 1 to 14) than the combined total of the six diseases most frequently causing death.

In the 5-to-14 year age group, accidents cause seven times as many deaths as diseases of the heart, the second ranking cause.

In the 15-to-19-year age group, accidents cause three times as many deaths as tuberculosis, the second ranking cause.

Accidents kill two out of five of all school age children who die.

We can stimulate action at the national level but local action is what really counts. That is where you can help. Here are six suggestions for industrial safety engineers. Why not talk them over with your local school officials to see how you can help your schools in their safety program?

1. *The school environment must be safe.*

The only way a safe environment can be maintained is by finding and correcting hazards. Few school people know how to make a realistic safety inspection. In several large cities, committees of industrial safety engineers have volunteered their services for such inspections. As a result, the physical hazards were removed and a fine working relationship between the schools and local industries developed.

2. *School people are not always up to date on industrial safety practices.*

School shop teachers are eager to bring industrial practices and school practices closer together but may be reluctant to make the first move.

Let them know you are interested in what they are doing. Let them know what you are doing and how you do it. Invite them to your plant to get first-hand

—*To page 116*

WAYNE P. HUGHES is Director, Schools and Colleges Division, National Safety Council.

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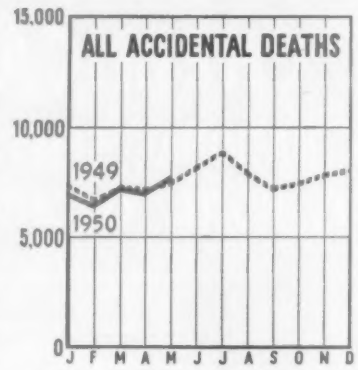
ALFCO

THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

Accidental deaths in May numbered approximately 7,600, or 3 per cent more than May last year. This was the first month to show an increase over 1949. Most of the increase occurred in deaths from motor-vehicle accidents, but deaths from occupational accidents also were more numerous. There was a moderate reduction in public non-motor-vehicle deaths. Home accident fatalities totalled about the same as in May, 1949.

The death total for the five months was 34,700, or 3 per cent less than last year. There were sizable reductions in deaths from home and public non-motor-vehicle accidents partly offset by a relatively large increase in motor-vehicle fatalities. Deaths from occupational accidents showed no change from last year.



	1950	1949	Change
May	7,600	7,400	+3%
Five Months	34,700	35,800	—3%

Motor-Vehicle Deaths

The May total of motor-vehicle deaths was 2,670, an increase of 10 per cent from May last year. Compared to 1948, however, it represented a decrease of 2 per cent.

Deaths for the five months totalled 12,470, an increase of 11 per cent from 11,240 in 1949. The five-month death rate per 100,000,000 vehicle miles was 6.9, the same as in 1949.

Of the 46 states reporting for five months, 11 reported fewer deaths than in 1949 and 35 had more deaths. Reporting cities with populations over 10,000 had an increase of 20 per cent for May and 3 per cent for the five months.

Regional changes from 1949 in the five-month death totals were:

North Atlantic	+ 6%
South Atlantic	+20%
North Central	+ 6%
South Central	+20%
Mountain	+34%
Pacific	— 2%

Occupational Accidents

Deaths from occupational accidents numbered approximately 1,500 in May, or 100 more than last year. The total for the five months was 5,700, about the same number as occurred during the same period of 1949.

The May frequency rate for plants in community council interplant contests was 8.22, an 11 per cent increase over last year. The May rate for plants in the National Safety Council's seven sectional contests was 6.38, an increase of 4 per cent over 1949. The five-month rate in the community council contests was 7.41 — down 9 per cent; while in sectional contests it was 6.82, an increase of 3 per cent.

Public Deaths

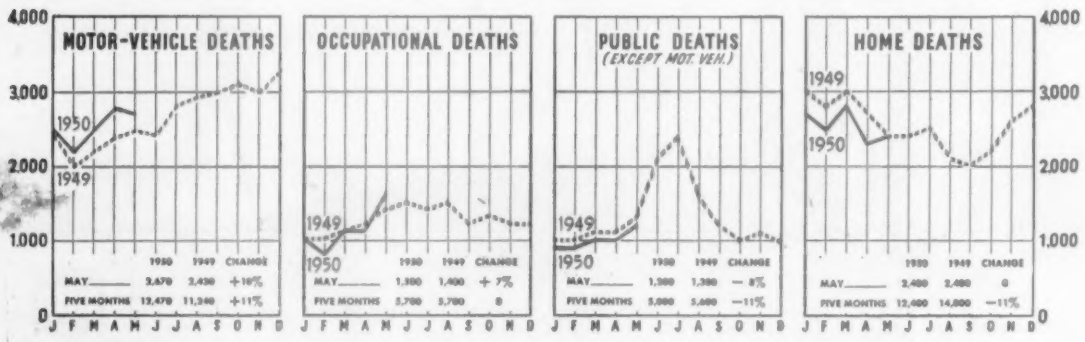
The death total for public non-motor-vehicle accidents in May was approximately 1,200, a reduction of 100 deaths from last year.

Deaths during the five months numbered about 5,000, a decrease of 11 per cent from 1949. There was a sizable reduction in deaths from transportation accidents and moderate decreases in fatal falls and drownings. Deaths from burns increased moderately over last year. Decreases were reported in all age groups with the greatest improvement recorded for persons 15 to 24 years old.

Home Deaths

May deaths from home accidents totalled 2,400, about the same number as occurred in May, 1949.

The five-month death total was 12,400, a reduction of 11 per cent from last year. Decreases were reported in all classes with the largest change recorded in mechanical suffocation deaths. Most of the reduction occurred among children 5 to 14 years old, but deaths of children under 5 years and persons 25 years and over also decreased. A small increase was reported for persons 15 to 24 years old.



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MYCO PRODUCTS

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Determining

ACCIDENT COSTS

PART 2

EDITOR'S NOTE: *Part 1 of this article, which appeared in the August issue of* NATIONAL SAFETY NEWS, *discussed the elements which could properly be considered in calculating accident costs. This concluding installment deals with the methods used in obtaining and analyzing the data on costs in any industrial organization.*

In 1945, the National Safety Council and the American Society of Safety Engineers undertook, through the Council's Industrial Conference Committee on Research, a study of the methods of calculating accident costs. The Committee selected Dr. R. H. Simonds, now associate professor at Michigan State College, to conduct the study, directed by the Council's Statistical Division. The accompanying article includes a condensed version of the final report of the Committee.

THE FIRST step in estimating total accident costs is a pilot study to determine which elements of cost exist and the approximate average cost of each accident, other than payments on workmen's compensation or insured medical expense. Once the average cost is established, it is used as a multiplier to estimate uninsured costs of future accidents.

In the pilot study, records are kept of four different classes of accidents:

1. Permanent partial and temporary total disabilities.
2. Temporary partial disabilities and cases requiring attention of a physician outside the plant.
3. Cases requiring only first aid or local dispensary treatment and resulting in property damage of less than $20.00.
4. No-injury accidents resulting in property damage of $20.00 or more, or accidents causing minor injury resulting in property damage of $20.00 or more. This limit is placed on minor accidents because it is felt that the cost of getting information on such accidents would be out of proportion to the value of the information.

No attempt should be made to calculate average costs for fatal accidents or permanent total disabilities. Costs for such accidents should be determined individually.

Groups 2 and 3 above may be combined if plant records do not distinguish between medical-treatment cases requiring a physician's attention. In plants where temporary partial disabilities (disability assignments) are common, this class of accident may deserve separate study.

Analysis of Costs for Accidents in Classes 1, 2 and 4

The supervisor in charge of a department in which a class 1, 2 or 4 accident occurs should secure the information requested on a department supervisor's report form. The complete form is sent to the safety department.

In the safety department, the information from this report is transferred to an accident data sheet. The safety department secures the supplementary information needed for the data sheet from the accounting department, industrial relations department, and other departments keeping necessary records. In some cases, all information may be obtained by the safety department, in which case the supervisor's report form is not used.

Before averages can be computed enough cases must be obtained in each of the three classes. The minimum number will rarely be less than 20, and usually it should be more than that. In general, the more widely the costs vary from case to case, the more cases are needed for reliable averages.

Once enough cases have been obtained, the investigation of costs of individual cases may be discontinued. The average uninsured cost per case of the appropriate class of accident is then applied to each accident in that class.

Analysis of Uninsured Costs for Injuries of Class 3

Class 3 accidents are the common first aid cases without substantial property damage. They are the most difficult to analyze from the standpoint of cost because the time lost is likely to occur repeatedly and for only short periods, and because the injuries may occur so frequently that it would be an undue burden on the supervisor and safety director to make out a complete report and data sheet for each case.

We must find out the average amount of working time lost per trip to the dispensary, the average dispensary cost per treatment, the average number of visits to the dispensary per case, and the average amount of supervisor's time required per case.

The following method of devel-

—To page 74

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Industrial Health

Highlights in Industrial Medicine, Hygiene and Nursing
Compiled by F. A. Van Atta, Industrial Department, NSC

Siderosis

Siderosis, a Benign Pneumoconiosis Due to the Inhalation of Iron Dust. Part I: A Clinical, Roentgenological and Industrial Hygiene Study of Foundry Cleaning Room Employees by L. E. Hamlin and H. J. Weber. Industrial Medicine and Surgery 19:152-169 (April 1950).

Clinical and pulmonary roentgenological findings observed in 69 foundry grinders and burners exposed to high concentrations of iron-oxide dust and insignificant amounts of free silica are presented.

The nodular shadows in the chest roentgenograms of these workers may easily be confused with those resulting from the inhalation of free crystalline silica. Differences in the radiological patterns are therefore enumerated and associated with occupational exposure. Case histories are given on nine selected employees whose roentgenograms show typical nodular shadows resulting from the deposition of iron-oxide particles in the lungs.

Study of the 69 workers involved in this presentation, correlated with the findings supplied by detailed hygienic plant surveys and experimental pathological investigation, demonstrates that the radiographic nodular shadows resulting from the inhalation of inert iron-oxide particles into the lungs represent siderosis and not silicosis as is frequently claimed.

In the present study, 328 representative samples of air-borne dust were collected by means of the midget impinger, electrostatic precipitator and salicylic acid filter, under summer and winter conditions of ventilation. Total dust counts ranged from 0.4 to 210 million particles per cubic foot of air with an average of 25 million particles per cubic foot of air.

The samples were analyzed by chemical, petrographic, elutriation and X-ray diffraction methods. Additional analyses were made to determine the percentage of free silica and iron oxide in the particle size range below 5 microns. The results in all samples subjected to X-ray diffraction indicated that the amount of free silica in the atmospheric dust ranged from 1.5 per cent to 16.3 per cent, with an average of 6.2 per cent. A dust sample containing 75 per cent or even 100 per cent free silica does not necessarily represent an unsafe atmosphere as long as the count is of a low order of magnitude. In this instance the average count was 25 million particles per cubic foot of air which is not considered excessive for a mixed dust. Also the count included other components as well as free silica. In other words the average total dust count was moderate and the average per cent of free silica it contained was low. The iron oxide ranged from 37.4 per cent to 90.0 per cent, with an average of 64.3 per cent. When the iron oxide was expressed in terms of atmospheric concentration, it ranged from 14 to 224 milligrams per cubic meter of air with an average of 49 milligrams per cubic meter of air.

The calculated values for exposure to free silica based on the dust counts together with the percentage of free silica are well below the maximum allowable concentration of 5 million particles per cubic foot of air. On the other hand, the average exposure to atmospheric iron oxide was well in excess of the highest published safe limit of 30 milligrams per cubic meter of air.

Author's Summary.

Siderosis, a Benign Pneumoconiosis Due to the Inhalation of Iron Dust. Part II: An Experimental Study of the Pulmonary Reaction Following Inhalation of Dust Generated by Foundry Cleaning Room Operations by Arthur J. Vorwald, Philip C. Pratt, Thomas M. Durkan, Anthony B. Delahant and Donald A. Bailey. Industrial Medicine and Surgery 19:170-179 (April 1950).

A high concentration of dust may occur in certain cleaning room operations in the foundry industry. This dust is finely divided and consists principally of iron oxide, accompanied by about 4 per cent of crystalline free silica and by other minor constituents. A quantity of this dust has been collected and used in an inhalation experiment in which normal guinea pigs, rats, and rabbits and tuberculous guinea pigs have been exposed for periods up to three years.

Serial chest roentgenograms of rabbits revealed the development of focal, apparently nodular densities throughout the lung fields after about two to three years of exposure. Gross and microscopic examination of the lungs of rabbits in which roentgenographic changes were present revealed round or elongated foci of accumulated dust without fibrosis. The roentgenographic changes were attributed to the fact that radioopaque iron oxide was the major component of the inhaled dust. Similar foci of accumulated dust, unassociated with fibrosis, were seen in rats exposed for a maximum of 18 months and in guinea pigs exposed for a maximum of three years. The course of R_1 tuberculosis in guinea pigs was unaltered by exposure to the dust. The foundry cleaning room dust employed in this study should be classed with the group of industrial dusts which are regarded as inert. *Author's Summary*

Galvanizers Assn. Meeting

The American Hot Dip Galvanizers Association has announced its 1950 Semi-Annual Meeting to be held at the Greenbrier Hotel at White Sulphur Springs, W. Va., October 4-6. Technical men from the United States and Great Britain will address the sessions, and one meeting will be devoted to a problems clinic.

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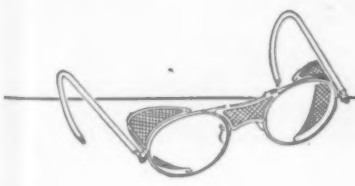

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Stars indicate number of awards since the first.

★ American Brake Shoe Co.

American Brakeblok Div., Detroit, Mich. — For operating throughout 1949 without a disabling injury.

American Cyanamid Co.

New York, N. Y.—Injury frequency rate reduced 33 per cent and injury severity rate 61 per cent in 1949 as compared with 1948.

Ceco Steel Products Corp.

Birmingham District Plant, Birmingham, Ala. — For operating without a disabling injury from June 11, 1945 to May 22, 1950. The award was presented by Braxton B. Carr, manager, Jefferson County Safety Council, Birmingham, Ala.

The Davidson Chemical Corp.

Curtis Bay Works, Baltimore, Md.—The 1949 injury frequency rate was only 16 per cent of the group average—the injury severity rate only 12 per cent of such average. Injury frequency rate was reduced 55 per cent in 1949 as compared with 1948. Award was presented August 10, 1950.

Phosphate Rock Div., Bartow, Fla.—The 1949 injury frequency rate was only 22 per cent of the group average — injury severity rate 5 per cent of such average. Injury frequency rate was reduced 67 per cent and severity rate 50 per cent in 1949 as compared with 1948.

General Electric Co.

Nucleonics Dept., Hanford, Works — For the operation of 5,500,000 man-hours without a disabling injury from April 24, 1949 to September 15, 1949. Award presented July 26, 1950.

The B. F. Goodrich Co.

Akron, Ohio—Injury frequency rate was reduced 36 per cent and severity rate 51 per cent in 1949 as compared with 1948. The 1949 injury frequency rate was only 62 per cent of the group average—injury severity rate but 37 per cent of such average. The award was presented July 24, 1950 to John L. Collyer, president, The B. F. Goodrich Company, by Ned H. Dearborn, president, National Safety Council.

The National Cash Register Co.

Dayton, Ohio — Injury frequency rate was reduced 21 per cent and injury severity rate 52 per cent in 1949 as compared with 1948. The 1949 injury frequency rate was only 69 per cent of the group average — injury severity rate but 62 per cent of such average. The award was presented July 20, 1950 to S. C. Allyn, president, The National Cash Register Company, by Ned H. Dearborn, president, National Safety Council.

Appointed Secretary of AAR Safety Section

H. S. DEWHURST has been appointed secretary of the Safety Section, Association of American Railroads, succeeding J. C. CAVISTON who retired recently. He also assumes the office of secretary of the Operating, Protective, and Medical and Surgical Sections held by Mr. Caviston.

Mr. Dewhurst was formerly assistant secretary of the Safety Section. Mr. Caviston has served as secretary since the organization of the section in 1921.

Headquarters of the Safety Section is at 59 East Van Buren Street, Chicago.

President S. C. Allyn of National Cash Register Company, Dayton, Ohio, addresses meeting at which the company received the award for distinguished service to safety. Ned H. Dearborn (left) made the presentation.

At presentation of DSS Award to the B. F. Goodrich Co. Left to right: Tom J. Cain, Jr., director of safety; Ned H. Dearborn, president, NSC; John L. Collyer, president and chairman, and T. G. Graham, vice-president of B. F. Goodrich.

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BOOKS AND PAMPHLETS

Aeronautics

Static Electricity in Aircraft Operations and Maintenance. Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1950. 11 p. Price 50c. (NFPA No. 404)

Explosives

Report of the Chief Inspector of the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles. Published by Association of American Railroads, Bureau of Explosives, 30 Vesey Street, New York 7, N. Y., 1950. 28 p. Free.

Fire Protection

Standards for Foam Extinguishing Systems. Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1950. 62 p. Price 50c. (NFPA No. 11)

Head Protection

List of Respiratory Protection Devices Approved by the Bureau of Mines. Published by U. S. Bureau of Mines, 1950. 15 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. Free. (Information Circular 7570)

Hospitals

Recommended Safe Practices for Hospital Operating Rooms. Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1950. 31 p. Price 25c (NFPA No. 56)

Marine Industry

Fire Protection of Vessels in Course of Construction and Under Repair. Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1950. 11 p. Price 50c. (NFPA No. 312)

Fire Protection Standard for Motor Craft. Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1950. 35 p. Price 35c. (NFPA No. 302)

Mines

Coal-Mine Explosions and Coal and Metal-Mine Fire in the United States in 1949. Published by U. S. Bureau of Mines, 1950. 17 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. Free. (Information Circular 7572)

Electronic Inspection of Mine Ropes. By William Simpson. Published by Department of Mines, Halifax, Nova Scotia, 1950. 17 p. Free.

Petroleum Industry

Recommended Good Practices in the Operation of Self-Service Gasoline Station. Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1950. 2 p. Price 5c. (NFPA No. 30E)

Radiation

Radiation Hazards of Radioactive Isotopes in Fire Emergencies. Published by International Association of Fire Chiefs, 22 East 38th St., New York 16, N. Y.

Refrigeration

Safety Code for Mechanical Refrigeration. Published by American Standards Association, 40 West 40th St., New York 18, N. Y. 1950. 19 p. Price $1.00.

MAGAZINE ARTICLES

Chemical Industry

Safety. By V. R. Croswell (In Industrial and Engineering Chemistry, July 1950. p. 77A).

Foremen

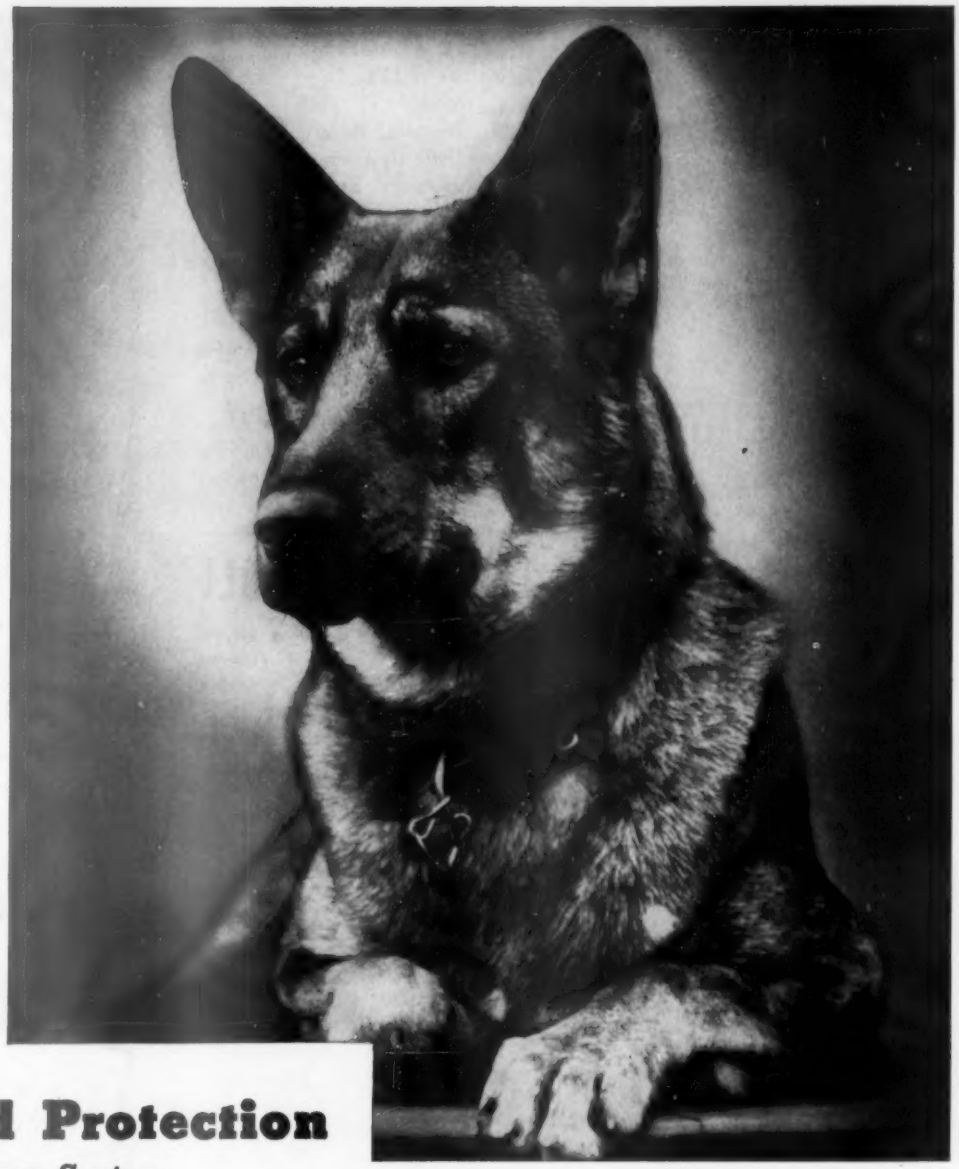
Foundation Blocks for Safety. By C. R. Stahl (In Coal Age, July 1950. p. 120).

Health

Carbon Tetrachloride Nephrosis. By Robert M. Farrier and Richard H. Smith (In Journal of the American Medical Association. July 15, 1950. p. 965).

Lighting

Eight Ways to Get Good Light-



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The Legge System of Safety Floor Maintenance

Successful management recognizes the importance of creating a favorable impression. Your floors are under constant observation...and use... day in and day out, by customers...visitors...employees. Beautifully polished, spotless floors *that are safe to walk on* provide *assured protection* for everyone at all times.

Only with the Legge System of Safety Floor Maintenance and Legge Safety Polishes and Cleaners, can you get all three qualities ... BEAUTY ... CLEANLINESS ... SAFETY. Also Legge Safety Engineers will create a specific floor-care program, free of charge, for users of Legge Safety Floor Products. Use the coupon below to get your free copy of "Mr. Higby Learned About Floor Safety" and start now to give your floors *assured protection.*

Walter G. Legge Company, Inc. NC-1
101 Park Avenue, New York 17, N.Y.
Please send me my free copy of "Mr. Higby Learned about Floor Safety."
I want *assured protection* for my floors.

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At last—a resilient, long-wearing coating of good gloss and *maximum slip resistance.* NO-SLIP, a new but thoroughly tested floor coating, provides a safe, lustrous surface. It is easy to apply, can be maintained inexpensively. (Co-efficient of friction rating 0.90 on linoleum and asphalt tile . . . by Underwriters' Laboratories Re-examination Service.)

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Distributors Wanted

ing in Your Plant. (In Factory Management and Maintenance, July 1950. p. 114).

Mines

The National Safety Competition of 1949. By Forrest T. Moyer. (In Explosives Engineer, May-June, 1950. p. 71).

Tested Safety Methods. (In Coal Age, July 1950. p. 116).

Saws

Guarding Circular Saws. By A. A. Soldner. (In Woodworking Digest, July 1950. p. 150).

Selling Safety

How to Get Across Your Ideas About Plant Safety. (In Factory Management and Maintenance, July 1950. p. 68).

THE HONOR ROLL

Records of operation exceeding 500,000 man-hours, or one year, if exposure exceeds 250,000 man-hours, without a disabling (lost-time) injury are invited.

American Cyanamid Co.

Calco Chemical Div., Gloucester City, N. J.—January 22, 1949 to May 5, 1950; 770,256 man-hours.

Kalamazoo, Mich.—August 11, 1947 to June 1, 1950; 208,342 man-hours.

Lederle Laboratories Div., Pearl River, N. Y.—August 11, 1949 to June 20, 1950; 5,203,685 man-hours.

New Castle, Pa.—September 15, 1948 to January 31, 1950; 685,766 man-hours.

Arizona Chemical Co., Pinene Plant, Panama City, Fla.—August 12, 1947 to May 1, 1950; 458,885 man-hours.

Celanese Corp. of America

Chemicals Div., Bishop, Tex.—August 9, 1949 to July 1, 1950; 1,100,494 man-hours continuing.

Great Lakes Steel Corp.

Ecorse, Detroit, Mich.—May 29, 1950 to July 5, 1950; 2,815,850 man-hours.

Mars, Inc.

Chicago, Ill.—October 23, 1949 to February 22, 1950; 1,330 employees, 805,302 man-hours.

Republic Steel Corp.

Coke Plant, Youngstown Dist.—June 15, 1949 to June 15, 1950; 519,971 man-hours, continuing.

the LIGHTER SIDE
by SID HIX
"...WEAR YOUR WORK CLOTHES —BE READY TO DIVE RIGHT IN, YOU SAID!
THEY MUST HAVE FIRST AID SOMEWHERE HERE, GEORGE.... THINK OF ALL THE HORSES THAT GET SCRATCHED!
THESE NEW BATHING SUITS! BOY, AM I GONNA GET AN EYEFUL!

Electric Weld Tube Mills, Youngstown Dist.—September 19, 1949 to June 15, 1950; 1,003,116 man-hours, continuing.

Rheem Manufacturing Co.

Bayonne, N. J.—October 26, 1948 to February 24, 1950; 578,342 man-hours.

Rohm & Haas Co.

Houston Plant—July 1, 1948 to

July 26, 1950; 557,747 man-hours, continuing.

Union Twist Drill Co.

Athol, Mass.—August 19, 1949 to June 24, 1950; 1,000,000 man-hours, continuing.

Wright Aeronautical Corp.

Wood-Ridge, N. J. — April 22, 1950 to June 13, 1950, 1,632,886 man-hours.

Vision Congress at Georgia Tech

The 1950 Occupational Vision Congress will be held October 12 and 13, 1950, on the campus of Georgia Tech in Atlanta, according to C. H. Taylor, of the institution's Engineering Extension Division.

This conference was called the Southeastern Industrial Vision Congress in previous years.

Panel discussions, arranged so that those attending can derive the fullest possible benefit, will be featured at this third annual meeting. Papers to be read will cover such subjects as accident control, how to start a vision program, occupational diseases, light, and correcting vision to the job.

Lighting the Way

The men in the bloom and billet mill at the Ford Motor Company's Rouge steel operations are lighting the way for other steel employees toward new safety records. Each is proudly using a new cigaret lighter, awarded to every man when the mill passed the 1,000,000 man-hours mark without a disabling injury.

The lighters were the first presented to steel employees under a new program granting individual recognition for safety records. The mill started its safety streak a year ago and was the first to pass the 1,000,000 mark.

Two other steel activities—the shops department and the coke ovens—have passed the 500,000 man-hours safety mark, and the strip finishing department has gone 350,000 man-hours.

The essence of modernity is that progress no longer waits on genius. Instead, we have learned to put our faith in the organized efforts of ordinary men.

—*W. E. Wickenden.*

You know how to operate this extinguisher
JUST BY LOOKING AT IT!
Randolph 6
TO OPERATE
It's a Randolph!
The first 10 to 30 seconds can mean the difference between no loss and complete destruction when fire starts. That's why Randolph's simple, obvious operation is so important in stopping fires before they spread!
Anybody can get a Randolph into action FAST! No valves to turn, no nozzles to adjust; just point and press your thumb! Randolph's snowy CO_2 is non-damaging, evaporates without a trace. It's non-toxic, won't conduct electricity, deteriorate or freeze. Underwriters' Approved.
A COMPLETE LINE OF CARBON DIOXIDE EXTINGUISHERS AND AUTOMATIC SYSTEMS
Learn how Randolph gives your plant better preventive fire protection! Write Randolph Laboratories, Inc., 2 East Kinzie St., Chicago 11, Illinois.
Randolph
SIMPLIFIED FIRE EQUIPMENT

Defense Against A-Bombs

The Effects of Atomic Weapons, prepared for and in cooperation with the U. S. Department of Defense and the U. S. Atomic Energy Commission, under the direction of the Los Alamos Scientific Laboratory. Published by U. S. Government Printing Office, Washington 25, D. C. 456 pages, $1.25, 1950.

The major object of this volume, which was released August 12, is the presentation of an accurate summary of the information available on the type and extent of damage to be expected from atomic weapons. While the field is very new and there is an inadequate amount of information on which to base such estimates, the work has been done by a large group of technicians expert in the various phases of the problem and undoubtedly represents the best information and the best estimates available at the present time.

To the man in industry who is not an expert in either radiation or explosives, the most interesting sections are the ones describing the effects of the bombs which were used over Japan and the extensions of this information to what would probably happen to structures and personnel in this country if they were subject to a similar attack.

One of the very interesting points is that the buildings at Hiroshima and Nagasaki which were built to withstand earthquake shock, with a resistance to lateral motion of 10 per cent of the vertical loading were able to stand up well to the blast of the atomic bombs. The buildings which were most completely demolished were, of course, the lightly built frame residences which were completely destroyed. Industrial buildings with steel frame and sheet metal or asbestos cement siding and roofing were completely destroyed. The siding and roofing were carried away in the blast and in going distorted the structural members. The equipment in the plants of this type was destroyed, either by being turned over or by the fire which followed the blast.

Masonry construction was very undesirable, particularly masonry bearing walls, because the walls collapsed readily and the bricks or cement blocks acted as missiles.

Immediately following these bombings great fires broke out simultaneously at many places in the area of damage. The fires were probably started by sources within the ruins rather than directly by the bomb but they were very destructive because of the immobilization of the fire-fighting apparatus by injuries to the personnel and by the great amount of debris in the streets. The radiant energy from the bomb was enough to char and ignite combustible materials but the blast wave was sufficient to extinguish them immediately.

More than half of the fatalities from the bomb were as the direct result of thermal burns contracted either as radiant energy at the time of the burst or as burns in the conflagration which followed. Only 5 per cent to 15 per cent of the fatalities were due to radiation sickness in any form. With the explosion of the bomb in the air to get the greatest amount of damage the only radiation casualties were those which occurred at the time of the blast, residual radioactivity was not a problem. The conditions under which residual radioactivity might become a problem and the necessary steps to decontaminate areas which might become dangerous because of residual radioactivity are discussed in some detail.

The design of shelters which would provide reasonable protection under various conditions and alterations to existing buildings which will make them more likely to withstand the stress of an atomic blast are also discussed at some length. One aspect of building protection for which there seems to be no really adequate answer is the danger from flying glass. It is not sufficient to paste cloth over the window and frame, as is done for protection under conventional bombing, because the duration of the atomic blast is so great that the glass will be torn loose. Wired glass protected by hardware cloth nailed to the frame is suggested as a possibility.

In order to fully appreciate the possibilities, the original should be read for a quantitative treatment of these and other problems. In spite of the obvious gaps in information necessary for specifying complete protective measures a great deal of practical information has been assembled about the bombs which have been used and conversion factors have been calculated for applying the information to bombs of other sizes if it should become necessary.

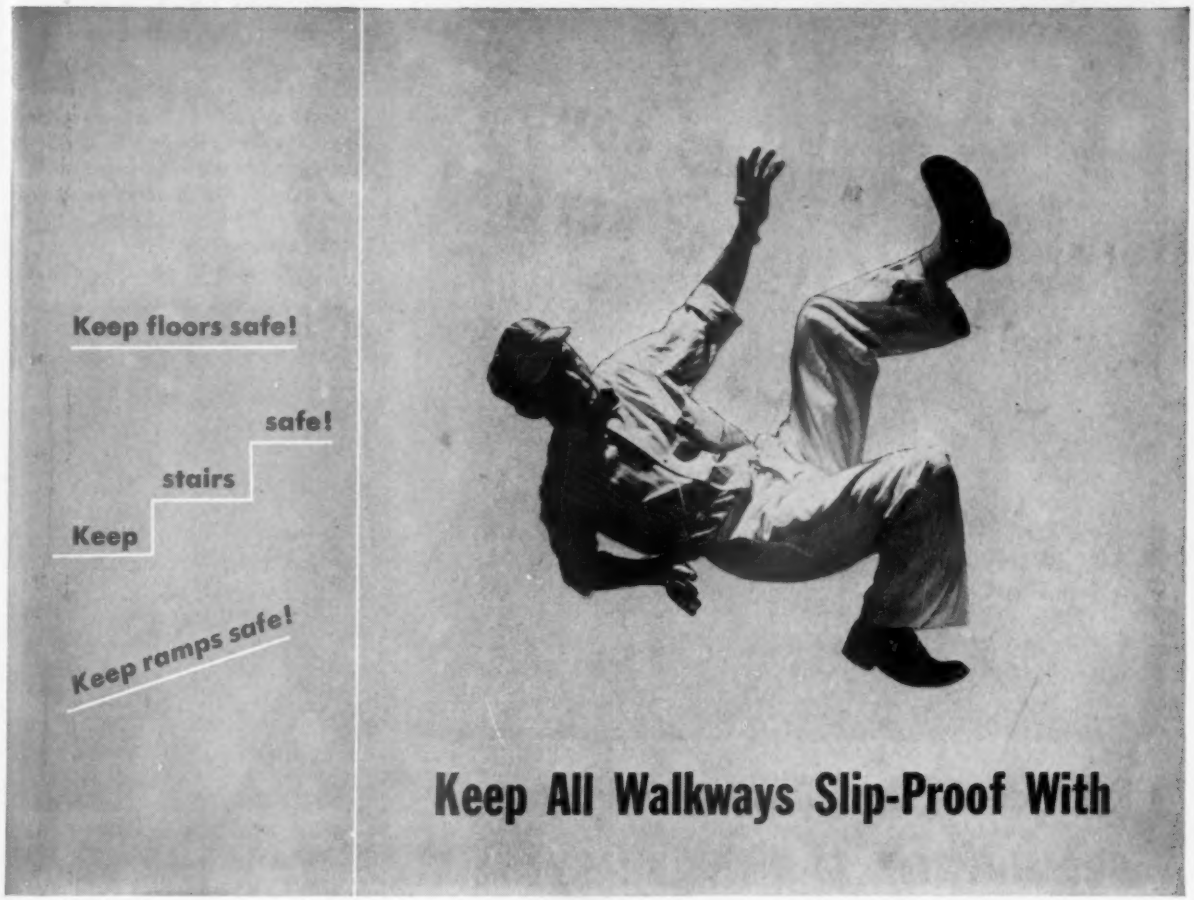
F. A. Van Atta

Construction Firm Gets AEC Safety Award

The contracting firm of James F. Thompson and Sons was recently presented an Atomic Energy Commission safety award for having been on the job for over two years without a disabling injury. The company, now working on an AEC research building in Ames, Iowa, has a frequency rate of 0.00 accidents per million man-hours. National Safety Council statistics show the construction industry with a frequency rate of 19.48 accidents per million man-hours, while the frequency rate for all Atomic Energy Commission construction is 8.72.

James F. Thompson, head of the firm, received the award from W. W. Lord, Ames area manager for the commission. Milton Aronstam, chief of health and safety branch, Chicago operation office, AEC, and Howard Peyton, chief of the engineering service branch, Ames area, AEC, were among those present.

With A-bombs and all, there's no point in bringing back the two-pants suit.



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The Plastic Abrasive Brush-Coating

Horn Tread-Sure produces a heavy antiskid surface on wood—concrete—or steel deck flooring. It is an abrasive-filled plastic brush-coating—simple to apply. It is resistant to gasoline, alcohol, oil and grease and many types of acids. Whether the surface is wet, dry or oily it provides a non-skid safety footing, preventing falls.

Designed for exterior as well as interior use, it may be brush applied over other paint or direct to unpainted surfaces. Used as it comes from the container. Available in three colors: Battleship Grey-Red-Green.

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Manufacturers of materials for building maintenance and construction—established in 1897
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Please send complete data on TREAD-SURE.

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COMPANY_____

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his announced destination.

Only one rolled steel floor plate

Reduced Premiums Soon Pay for a

BLAW-KNOX SPRINKLER SYSTEM

Deluge Systems, Wet Pipe Systems, Dry Pipe Systems, Water Spray and Fog Systems, Rate-of-Rise Sprinkler Systems, and Foam and Carbon Dioxide Extinguisher Systems.

"LITTLE JOEY SPRINKLER"

Remember, if you are burned out and have collected your insurance, you are *still the loser*—for there is no insurance against loss of income, good will and employees' jobs. A Blaw-Knox Sprinkler System engineered for the fire hazards existing in or around a plant is industry's most effective weapon against fire. It's on the job 24 hours a day dousing *fires at their start*, sounding alarms, closing safety doors . . . all in a matter of seconds.

Blaw-Knox can arrange to have your insurance savings applied annually until the cost of the sprinkler system has been amortized... providing you with the utmost in fire protection plus a good financial investment.

Glad to consult with you and submit an estimate without obligation.

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OF BLAW-KNOX CONSTRUCTION COMPANY
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Offices in Principal Cities

BLAW-KNOX FIRE PROTECTION SYSTEMS

Appointed Chief Safety Engineer for Bethlehem

The appointment of CARTER KENDALL as chief safety engineer, Bethlehem Steel Company, has been announced by Walter F. Ames, manager of compensation and safety. Mr. Kendall succeeds the late J. E. CULLINEY whose death occurred on July 7.

Mr. Kendall is a native of Baltimore and a graduate of the United States Naval Academy, class of 1923. He was employed for 12 years by Globe Indemnity Company, of New York, first as a safety engineer and later as supervising safety engineer in various of Globe's east coast districts. In 1940 he became a safety engineer for Bethlehem Steel and in 1944 was made assistant chief safety engineer.

From August, 1944, until March, 1946, Mr. Kendall served as safety superintendent of the Norfolk Naval Shipyard, Portsmouth, Va., with the rank of lieutenant commander, USNR, subsequently resuming his duties with Bethlehem.

Mr. Kendall has been active in National Safety Council affairs in various capacities for the past ten years and is presently a member-at-large of the Industrial Conference.

Theo. O. Meisner Retires

THEO. O. MEISNER, who has been associated with power press guarding longer than most of us can remember, retired from active duty with American Can Company, September 1. Florida was

his announced destination.

Ted Meisner was born in Canton, Missouri, November 18, 1885. He attended high school in Cleveland, Ohio, and got a degree in

mechanical engineering by the correspondence school route.

In 1901 he started with American Can Company in the machine shop. His safety activities started the following year when the company began to employ women power press operators. One of his duties was to keep records of accidents, and he referred to this grim ledger as the "butcher book."

Ted's efforts on behalf of safety were not always appreciated. Many of the supervisors of 40 years ago were violently opposed to guards, and even operators objected to them. But persistance got results, and in 1912 Ted was appointed safety engineer for the Cleveland plant. In 1920 he was moved to Chicago as manager of the Central District Safety Division of American Can Company.

Ted is a member of the American Society of Safety Engineers and was general chairman of the Society when it was the Engineering Section of the National Safety Council. When the Council's Power Press Section was organized in 1926 he was elected its first chairman. He held that office again 1934-35.

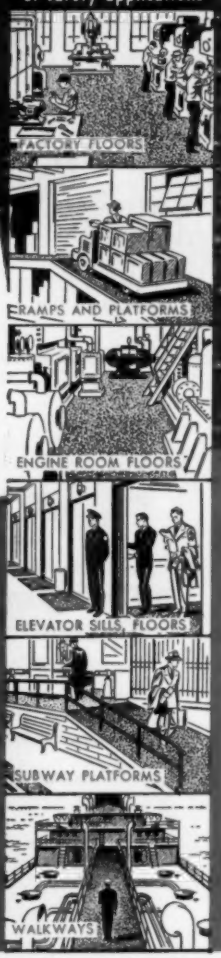
From June 1, 1940, to November 15, 1950, he was director for Region No. 6 of the National Committee for the Conservation of Manpower in the Defense Industries (later the War Industries) involving 10 states.

From 1920 to 1947 he was a member of the Advisory Committee of the Industrial Commission

—To page 84

Only one rolled steel floor plate gives you complete *anti-skid* protection

A.W. ALGRIP has hundreds of safety applications



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ABRASIVE ROLLED STEEL FLOOR PLATE

There's nothing like it, absolutely nothing like A.W. ALGRIP. It's the one and only Abrasive Rolled Steel Floor Plate. A.W. ALGRIP is made by rolling tough abrasive grain (the same type used in grinding wheels) as an integral part of the upper portion of steel floor plate. Result: A floor plate that's truly non-slip even when wet or on steep inclines. It keeps men's feet safe and secure.

Because Algrip is rolled steel, it is stronger than other abrasive floorings and withstands severe punishment without cracking or chipping. Then, too, thinner sections may be used without reducing load carrying capacity.

Get complete information about A.W. ALGRIP now. Write or use the coupon for a FREE copy of our 8-Page Catalog.

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A.W. ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

A Product of ALAN WOOD STEEL COMPANY

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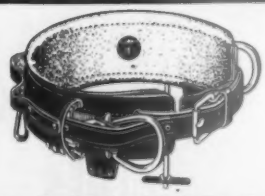
Other Products: PERMACLAD Stainless Clad Steel • A.W. SUPER-DIAMOND Floor Plate • Billets Plates • Sheets • Strip • (Alloy and Special Grades)

safety with KLEINS



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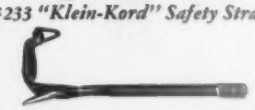
5233 "Klein-Kord" Safety Strap



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The remarkable record of safety made by utility companies over the years is due in no small measure to the equipment used by the men on the job.

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Men whose lives depend on the equipment they use realize there can be no substitute for quality. The name Klein is generally accepted as standing for the finest in linemen's and electricians' tools and equipment.

Foreign Distributor:
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The Klein Pocket Tool Guide, showing the Klein line and containing useful information, will be mailed on request.

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COMING EVENTS

In the Field of Safety

Sept. 14-15, York Harbor, Me.
Twenty-third Annual Maine State Safety Conference. (Marshall House). A. F. Minchin, director, Industrial Safety Division, Department of Labor and Industry. Augusta, Me.

September 19-21, Cleveland, O.
Twelfth Annual Ohio State Safety Conference. (Hotel Carter). Carl L. Smith, secretary-treasurer, Suite 508, 2073 E. 9th St., Cleveland 15, Ohio.

Sept. 25-26, Little Rock, Ark.
Arkansas State Safety Conference. (Hotel Marion). Harvey D. Booth, executive director, Arkansas Safety Council, P.O. Box 2261, Little Rock, Ark.

Oct. 12-14, Houston, Tex.
Third Annual Gulf Coast Conference on Industrial Health. (Rice Hotel). David M. Wood, chairman, Promotion Committee, c/o Chamber of Commerce, P. O. Box 2371, Houston 1, Tex.

Oct. 16-20, Chicago
Thirty-eighth National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Oct. 18, Chicago
Association of Safety Council Executives. (Lake Shore Club). H. G. Hays, Ohio State Safety Council, 2073 E. 9th St., Cleveland, Ohio.

Nov. 1, Fort Worth, Tex.
Sixth Annual Industrial Institute, sponsored by Fort Worth Safety Council and Fort Worth Chapter, ASSE. L. W. Graff, safety director, Fort Worth Safety Council, Majestic Bldg., Fort Worth, Tex.

Nov. 27-29, New York
Thirty-second Annual ASA Meeting and First National Standardization Conference. (Waldorf Astoria Hotel). Cyril Ainsworth, assistant secretary, American Standards Association, 70 E. 45th St., New York 17.

Dec. 11-12, New Orleans, La.
Louisiana Safety Association, Annual Meeting. (Roosevelt Hotel). Col. Charles E. Doerler, secretary, Louisiana Safety Association, Box 806, Shreveport, La.

Feb. 6-7, Philadelphia
Seventeenth Annual Philadelphia Regional Safety Conference and Exhibit. (Bellevue-Stratford Hotel) Walter W.

Matthews, managing director, Philadelphia Safety Council, 17th and Sansom Sts., Philadelphia 3.

Mar. 19-20, Boston
Thirtieth Annual Safety Conference and Exposition. Edgar F. Copell, president, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Apr. 3-6, New York
Twenty-first Annual Greater New York Safety Convention and Exposition. (Hotel Statler). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 E. 42nd St., New York 17.

Apr. 24-26, Chicago
Twenty-eighth Annual Midwest Safety Conference. (Congress Hotel). Joseph F. Stech, manager, Greater Chicago Safety Council, 10 N. Clark St., Chicago 2.

Apr. 24-26, Pittsburgh, Pa.
Twenty-sixth Annual Western Pennsylvania Safety Conference and Exhibit. (William Penn Hotel). Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, 605 Park Bldg., Pittsburgh 22, Pa.

May 14-16, Syracuse, N. Y.
Central New York Safety Conference and Exposition. (Hotel Syracuse). Walter L. Fox, executive secretary, Safety Division, Syracuse Chamber of Commerce, 351 S. Warren St., Syracuse, N. Y.

Safety Courses Offered By New York University

Courses in industrial and traffic safety are announced by the Center for Safety Education, Division of General Education, New York University, for the fall term beginning September 25. The expanded curriculum makes it possible for the students selecting a full program of ten courses to secure either a certificate in industrial safety or a certificate in traffic safety.

The following courses will be offered in the fall term:

Required Courses: Accident Prevention — Its Background, Objectives, and Relationships; The Philosophy and Basic Principles of Accident Prevention: Industrial Hazards, Mechanical- and Personal-Control Methods; Fire Prevention and Protection Inspection; Organization and Administration of Traffic Safety Programs—Industrial, Community and Governmental.

Elective Courses: Vision in Industrial Safety and Motor Vehicle

COULD ANYTHING BE MORE CONVINCING THAN YOUR OWN EXPERIENCE?
Then give HERC-ALLOY the toughest chain job in your plant. Our asking for this test reflects the confidence given us by HERC-ALLOY service records from industry's leading plants.
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HERC-ALLOY is America's ***first alloy*** steel chain. For slings or other applications HERC-ALLOY Chain will prove that efficiency, safety and economy can go hand-in-hand.

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GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.
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Eliminate These Potentially Dangerous Areas:

Stairways	Landings
Platforms	Approaches
Inclines	Traffic Lanes
Cat Walks	Elevator Floors
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Apply SURE-FOOT—Its Positive Traction Remains Non-Slip—Wet or Dry

EASY TO APPLY—SURE-FOOT spreads like ordinary paint on any clean, dry surface. No formulas to mix and no special tools or skilled workmen required in its easy application.

ECONOMICAL—Low in initial cost, SURE-FOOT offers excellent one coat coverage . . . costs less than 10¢ per sq. ft installed.

LONG LIFE—Tough, traffic resistant carbide crystals form the abrasive content in SURE-FOOT, assuring a non-slip surface at all times. SURE-FOOT is fire retardant and prevents surface deterioration.

Write Today..

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MINNEAPOLIS 13, MINNESOTA

Operation; Effective Public Speaking; Principles of Safety Inspection.

All courses are given in the evening at the Center for Safety Education, 8 Fifth Avenue, New York 11, N. Y.

Calendar Contest Winners July—1950

First prize in the National Safety Council's Safety Calendar Contest goes this month to Mrs. E. G. Smith, Hamilton, Ont., Canada. The theme in this contest was the value of first aid. Mrs. Smith's two-line rhyme was adjudged best of all those submitted. It was:

By using first aid instead of endurance
Your family has you instead of insurance.

Second prize went to Mrs. H. W. Guenther, Tahlequah, Okla., for this rhyme:

Poor little Joe! he didn't know
That germs just grow and grow and grow!

Third prize was awarded to Ralph S. Farnum, Industrial Relations, U. S. Rubber Co., Detroit, Mich., for the following rhyme:

Listen, Mr. Working Man, we are talking right at you, sir!
Get first aid quick for all your ills and still be a producer.

Thirty $5 awards were issued to:

Thomas J. Brady, city clerk, Pittsburgh, Pa.

Sam Latier, Missouri Portland Cement Co., St. Louis, Mo.

Eleanor Blake, Staten Island, N. Y.

Mrs. Lois Godlove, Akron, Ohio

Elizabeth F. Gates, Boston, Mass.

James S. Burnett, mechanic, Chicago & Southern Airlines, Houston, Tex.

Mrs. Grace Crowe, New Orleans, La.

Mrs. Franklin Gordon, Falls Village, Conn.

Hugh Pennock, foreman, Smith Monument Works, Longmont, Colo.

Genevieve Taylor, stenographer, Harper-Meggee, Inc., Portland, Ore.

Mrs. Carlton Elliott, Tacoma, Wash.

Hugh G. Hoar, supervisor progressman, Naval Air Station, San Diego, Calif.

Mrs. Virginia Mock, Guthrie, Okla.

Carl Waddey, furniture refinisher, Firestone Tire & Rubber Co., Memphis, Tenn.

W. H. Copley, Williamson, W. Va.

Mrs. V. L. Levin, Milwaukee, Wis.

George Koehler, North Industry, Ohio

Helena Fowler, shop owner, Auburndale, Mass.

Margaret Greene, dean of student nurses, Hinsdale Sanitarium and Hospital, Hinsdale, Ill.

Amiee T. Battle, Villa Nova, Pa.

Thelma Thweatt, Shreveport, La.

Mrs. Ned Fish, secretary, Dept. of Chemistry, Univ. of Missouri, Columbia, Mo.

Alfred Frampton, Howard Smith Paper Mills, Ltd., Cornwall, Ont., Canada

Charles T. Wiggett, Holden, Mass.

Lucie Ann Branda, Rowayton, Conn.

Mrs. H. N. Tatomer, Niagara Falls, N. Y.

Eugene Wishall, Nordberg Mfg. Co., Milwaukee, Wis.

John Baar, Morse Chain Co., Detroit, Mich.

Fred P. Linxwiler, Holsum Bread Co., Monroe, La.

James O. Etter, still helper, Standard Oil Co. (Ind.), Sugar Creek, Mo.

A new contest is offered each month through the safety calendar.

Bonds for Safe Workers

U. S. Government Savings Bonds amounting to $3,500 were recently awarded to 12 employees of the Chicago & Eastern Illinois Railroad as part of the new accident prevention program.

Awards were made in the form of a drawing with 3000 employees participating. Workers from every hazardous occupation participated, but only those who worked a minimum of 75 days for the first half of the year and suffered no personal injury during this time were eligible.

Each eligible employee was given a number and the drawing was held at the Oaklawn shop in Danville, Ill. Don Wilson, local lumber dealer and former mayor, drew the winning numbers.

H. H. Orr, superintendent of safety, reports that during the first half of 1950 accidents were reduced by 15 per cent as compared with the same period of the previous year.

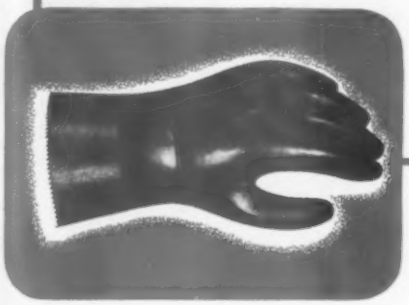
Fire and Safety Courses At New York University

The Graduate Division of the College of Engineering, New York University, is offering graduate courses in fire protection engineering and safety engineering. Edward J. Kehoe, chief, Fire and Accident Branch, New York Operations Office, U.S. Atomic Energy Commission, conducts the fire course on Wednesday nights. The safety course on Thursday nights is given by Henry A. Cozzens, Jr., industrial consultant.

The courses are ordinarily open only to college graduates; however, applicants qualified by experience may also be accepted. Registration will take place September 14 and 15, 6:30-8:30 p.m., South Hall, University Heights.

Model 4703—Full Neoprene coated, knit wrist style used in all types general industry. Liquid proof, curved fingers, no seams on working surface.

Model 7701 — Fully Neoprene coated with (4") cuff for use where dipping operations, spray or splash are not too high.



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Hood has built an enviable reputation in its more than 50 years, and that reputation, plus the world famous research that has made B. F. Goodrich "First in Rubber" stand behind every pair of these longer lasting, more comfortable, more flexible gloves. Write today for our latest catalog showing the entire line of Rubber gloves both Neoprene coated and Plastic coated.

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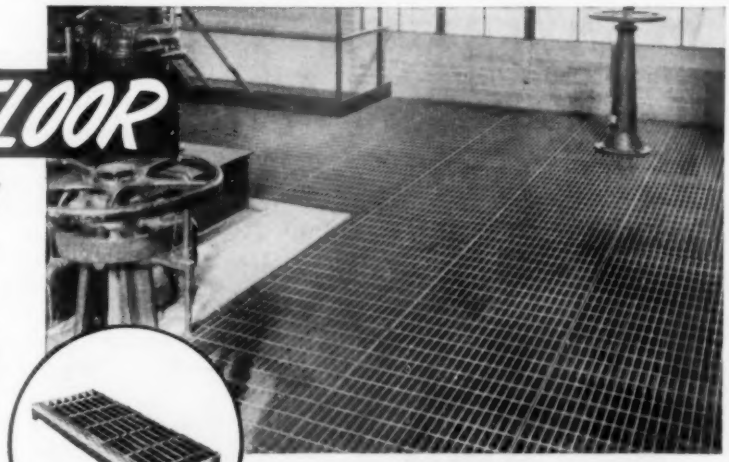

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Designed for tremendous strength against impact. Available with rolled diamond checker plate nosing (illustrated); twisted crossbar nosing; or abrasive nosing.

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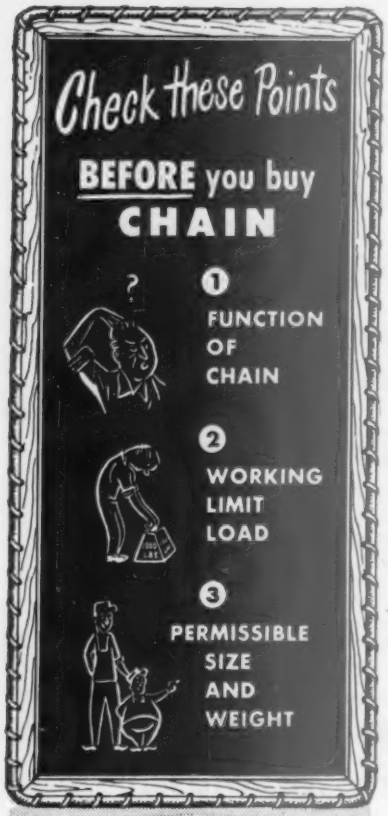

Then "Engineer"
McKAY CHAIN
to your specific needs

The use for which the chain is intended and working conditions under which it will operate often determine the type of chain to be used for the job. That's why it's important to check the above points *before* buying chain. Call on McKay to help "engineer" McKay Chains to your exact requirements. Then you'll be sure you're getting the best chain to do the job efficiently and economically

Send for the
McKAY
SLING-CHAIN KIT
It gives standard sling-chain specifications and shows how to specify sling and other chains used in plants and shops.
THERE'S A McKAY CHAIN FOR EVERY JOB
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Start on Fourth Million at 10:40

When the hands of the clock reached 10:40 on the evening of March 29, Wilson-Snyder Division of Oil Well Supply Company, Braddock, Pa., passed another milestone in its safety record. Three million man-hours without a disabling injury had been worked.

During the accident-free period, which has lasted nearly five years, several awards have been received from the National Safety Council by this United States Steel Corp. subsidiary. These include plaques. In the Metals Section, Wilson-Snyder won awards in its group for operating without a disabling injury during the years ending June 30, 1947, 1948 and 1949. The Council's Award of Honor for Distinguished Service to Safety was also awarded for operation between July 16, 1945, to April 30, 1948.

During the war the accident rate became alarmingly high because of manpower shortage and labor turnover. The safety committee did its best to improve the record by changing equipment and methods but found that the program had not been thoroughly sold to employees.

The first goal of the campaign was only one month and they made it. As the number of safe man-hours grew, interest mounted.

Pictured with the poster announcing the new goal of 4,000,000 man-hours are Mary Kolson, a stenographer at the plant, who held the clock in the final seconds of the drive to reach 3,000,000 man-hours, and left to right: Steve Terek, Cyril F. Schweinberg, John F. Hrivnak and Joseph A. Zajac.

ASKED and ANSWERED

Assistance with problems of accident prevention and industrial health is offered by National Safety Council. All inquiries are answered by mail and a few topics are selected for publication.

Goggles for Grinding

Question: Do any of the equipment companies offer grinder switch devices that will insure the wearing of goggles by the user?

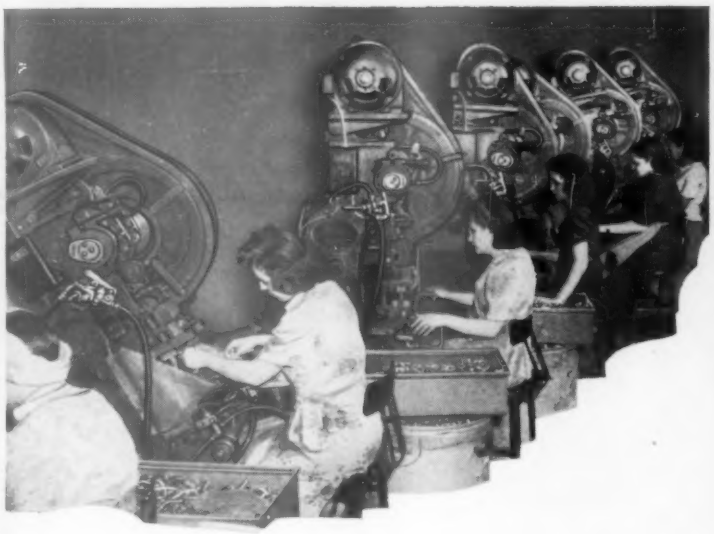
Answer: A number of companies have used the idea of having goggles hung on the grinder switch, which cannot be operated until the goggles are removed from the hook. The obvious loophole in this idea is that there can be no assurance the goggles will be placed over the eyes after they are removed from the switch hook.

Piling Barrels

Question: Can you supply information on the safe piling of barrels in warehouses?

Answer: The height to which barrels can be stacked usually is

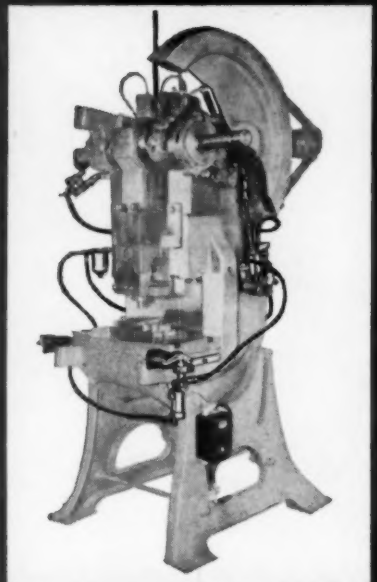
Years of *SAFETY* for Minutes of Thought



SCHRADER TWO-HANDED PNEUMATIC POWER PRESS CONTROLS are standard in shops all over the country. They increase safety in two ways: 1. They are true *two-handed* devices; both hands must be used to operate the press and operator cannot defeat purpose of control by tying down one lever. 2. They are so easy to operate they reduce fatigue, regarded as one of the leading causes of accidents.

SCHRADER CONTROLS PAY THEIR COST MANY TIMES OVER

SCHRADER CONTROLS are low in first cost and, unlike many protective devices, on the job every minute. Wherever used they reduce operator fatigue and the fear of accidents. This means better morale and increased production . . . especially on the fag end of the shift. Don't wait for an accident to remind you to buy SCHRADER POWER PRESS CONTROLS when you can save money, reduce accidents and increase production every day through their use. A few minutes thought now may give you years of safety. Write today for information and free literature.



Schrader Pneumatic Two-Handed Press Control. This device converts continuous action clutches to single action. Easily and quickly installed on most types of power presses.

NOTE: Foot operated controls and combinations of hand and foot operated controls are also available.

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- Water cooled engine — quiet and cooler.
- Hydraulic brakes — airplane type.
- Double handle grip provides one or two hand steering.
- When operator leaves seat, parking brake is mechanically applied.

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The "MASTER" Line ®

21 Sq. Ft. of Loading Space . . . . Draw Bar Pull: 1200 lbs.
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determined by the loading capacity of the floor and the height of the ceiling. When empty barrels are stacked in pyramidal form, the bottom row should be blocked so the barrels cannot roll.

When barrels are stacked on end, it is considered good practice to place planks across each row to form a base for the next row and to tie the stack together. Some authorities recommend also that stacks of upright barrels should be in pyramidal form.

The same general principles apply in the case of fiber or pasteboard barrels, with the obvious reservation that the pile must not reach such weight as to crush the barrels on the bottom.

The Loose Rein

(From page 19)

that had produced a fatality. This is one situation the corporation safety staff always handles directly —the investigation of every fatal accident in the corporation plants in the United States and Canada. Ken had the whole story—the type of work done, the kind of ladder, the setting of the department, the work history and physical condition of the victim.

Even more illuminating was the steady phone traffic of Dave's friends, in and out of the corporation, calling in on other business, but always asking about the current cases, expressing their sympathy, looking for information to help prevent similar accidents.

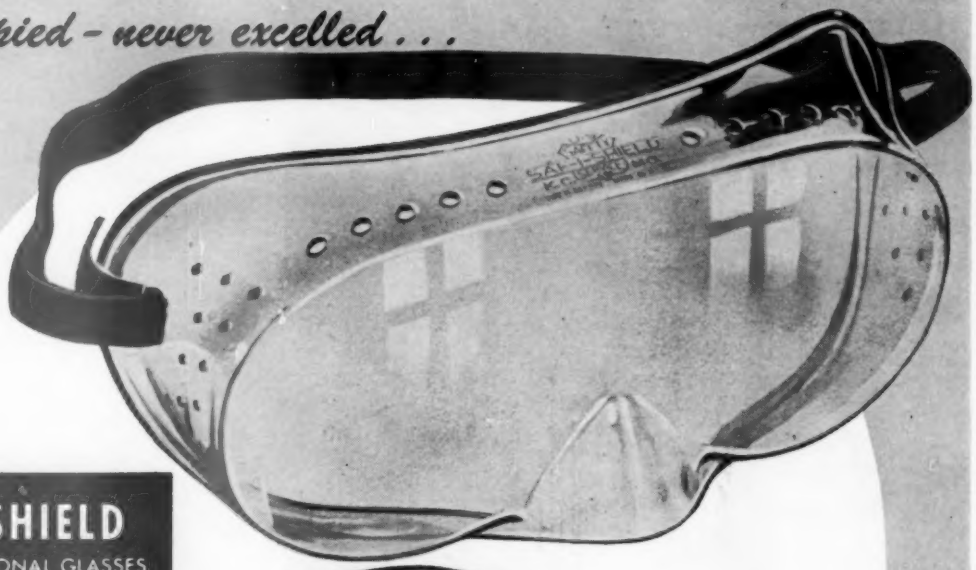
And most illuminating of all was the reaction of Dave and Ken, talking in the room dominated by the large accident and frequency rate charts which show a long-run trend downward that no short-run streak of bad luck could reverse. They were seriously concerned, but not panicky or jolted out of their confidence in the tested program.

The investigation of fatal accidents is only a small part of the field work done by these two safety engineers. One or the other is almost always out of headquarters, making inspections of company plants across the country. Depending on the size of the plant and the unsolved problems of safe-

the SAFE-I-TWINS!

PIONEERS IN THE FIELD

often copied - never excelled . . .



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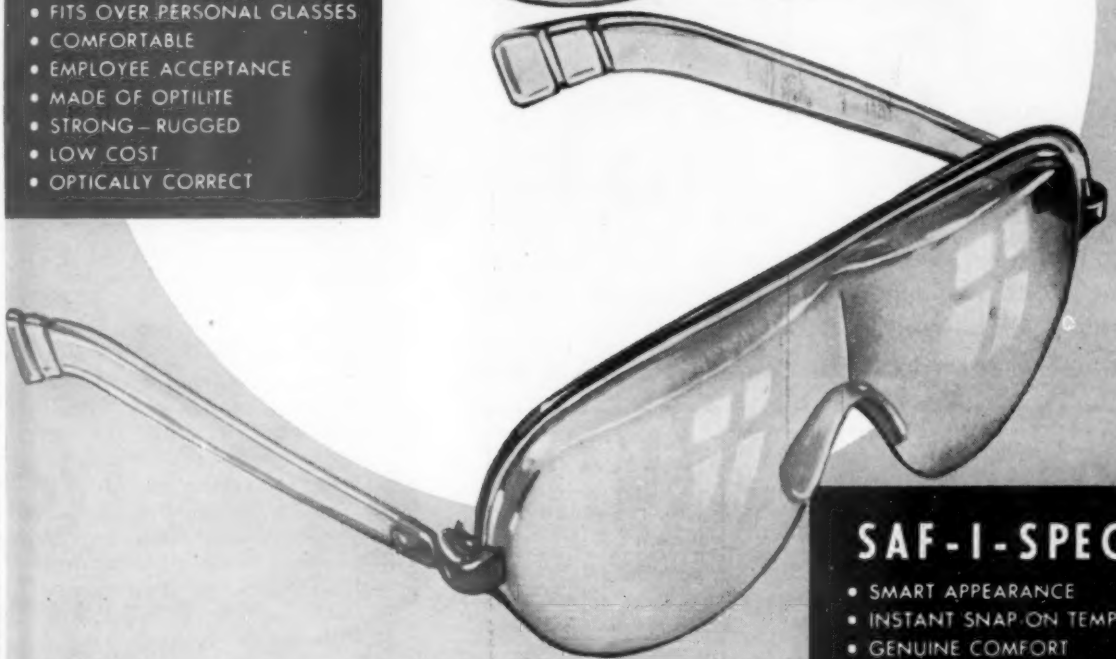
- FITS OVER PERSONAL GLASSES
- COMFORTABLE
- EMPLOYEE ACCEPTANCE
- MADE OF OPTILITE
- STRONG – RUGGED
- LOW COST
- OPTICALLY CORRECT



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- RUGGED – TOUGH
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- LOW COST
- MADE OF OPTILITE

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Write for literature and prices!

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Free! Foot Safety POSTERS

from the Pioneer Manufacturers of Safety Shoes

for want of a Safety Shoe...
More than a toe was lost!
For want of protection, a toe was lost.
For want of a toe, man-hours were lost.
For want of man-hours, production was lost.
For want of production, good will was lost.
For want of good will, profits were lost.
And all for the want of a safety shoe.

...To Help Keep Employees on Their Toes... to Cut Your Accident Costs... Get These Colorful Posters (Without Advertising) Now!

Write: SAFETY FIRST Shoe Company, Holliston 3, Mass.

Sets of 3 Posters FREE

Safety First Shoe Co.
Holliston 3, Mass.

Gentlemen:

Please send ..... (quantity) sets of three Foot Safety Posters without advertising.

( ) Also send your illustrated booklet "Pioneering An Industry".

Name.....

Title.....

Company.....

Address.....

ty facing it, an inspection may take a half-day or a week.

Dave and Ken try, without quite succeeding, to visit each of the 106 plants once a year. Special local problems may make it necessary to visit a certain plant oftener, even if this means skipping a plant whose safety program is in first-rate shape.

The inspection covers both the physical plant facilities and the operation of the human side of the safety program. Dave or Ken checks first with the plant general manager, usually consults with the personnel director, who, in most cases, directs the actual plant safety staff. The defects, whether they are inadequate guards or weak safety meetings, are noted in a report to the plant manager, and copies of this report go through headquarters' channels to the group executives to whom the plant manager reports.

The inspections also provide direct contact for the exchange of information between the headquarters' safety men and the safety personnel in the plants. This brings to the local plant a mass of information based on experience throughout the corporation. It does not bring any *orders* to the plant, for Dave and Ken hold scrupulously to their staff function.

The exchange of information is not one-sided. Dave and Ken stressed repeatedly to me that a large part of their job is that of serving as a clearing house of information. From plant visits, from bull sessions, from correspondence, from memos, they are constantly learning from the plants new methods of dealing with accidents. It may be a bright idea for an educational stunt; it may be a new design for a guard; it may be a cleverly worded pamphlet or the detailed drawings of an improved ventilating system costing scores of thousands of dollars. But whatever it may be, every good idea developed in the plants is grist for the information mill which grinds endlessly in the corporation safety department offices.

Leading item in the long list of informational materials turned out is the thrice-weekly "Safety Idea Exchange" a mimeographed bulletin which goes to every plant. Many issues contain a report of

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Skin irritations caused by working with industrial materials can be prevented with adequate skin protection. Breck pH7 Protective Cream spread onto the skin of the hands, face or arms will form a protective film that helps prevent direct contact with many harsh industrial materials. People working with cooling lubricants, cutting compounds, lime, paint, rubber dust and petroleum solvents will find that these materials are easier to remove after using Breck pH7 Protective Cream. The new dispenser top for the pound jar of Breck pH7 Protective Cream makes application easier, more sanitary, and saves the worker time.

Request the new dispenser top with your next order of the pound size Breck pH7 Protective Cream.

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gives complete protection from

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Sawyer's Neoprene Latex Protective Clothing is *not* made from ready-made fabrics but from the highest quality base fabrics coated inside and out with Sawyer's own industry-approved and tested Neoprene Latex. There is no finer protective clothing on the market than Sawyer's Frog Brand. Write for illustrated catalog and detailed price lists.

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SAFETY AT DELCO APPLIANCE

We at Delco Appliance Division of General Motors are interested in having a good safety program for many reasons. We might list them as follows:

1. **A good safety program promotes teamwork and cooperation among employees.**
2. **It develops better housekeeping, higher quality products, and greater efficiency.**
3. **It provides management with an excellent means of communication with all employees.**
4. **Having been provided with good, safe working conditions, employees are better satisfied; they know management is interested in their health and welfare.**

Because every employee in our plant takes an active part in the safety program, a much greater interest is displayed. To stimulate this interest, we hold executive safety committee meetings each month to discuss safety measures that are needed. These discussions are written into reports that are distributed to the various superintendents and department heads, and it is then their responsibility to explain these decisions to their foremen. The foremen then talk over these matters, and any others of safety interest, with each employee individually.

Housekeeping plays a major role in our over-all safety program. We have found that a well lighted, well ventilated, and tidy workplace has resulted in greater efficiency on the part of our personnel, as well as improving the quality of our finished products.

Every supervisor is required to talk safety to two employees each day, and the employees are encouraged to bring up and point out any safety problems that they might be confronted with at that time.

We feel that by providing a good safe place to work we are rewarded in many ways. If the employees know that we are sincerely interested in their welfare, and they are able to observe this feeling, naturally, we are going to be able to recruit and retain a higher type working personnel.

In all respects we feel well repaid for the attention given our safety program.

P. Rutherford, General Manager
Delco Appliance Division
General Motors Corporation

some accident, not necessarily within the corporation, which illustrates some safety point. Others contain rules or methods of handling a problem developed anywhere in the GM family.

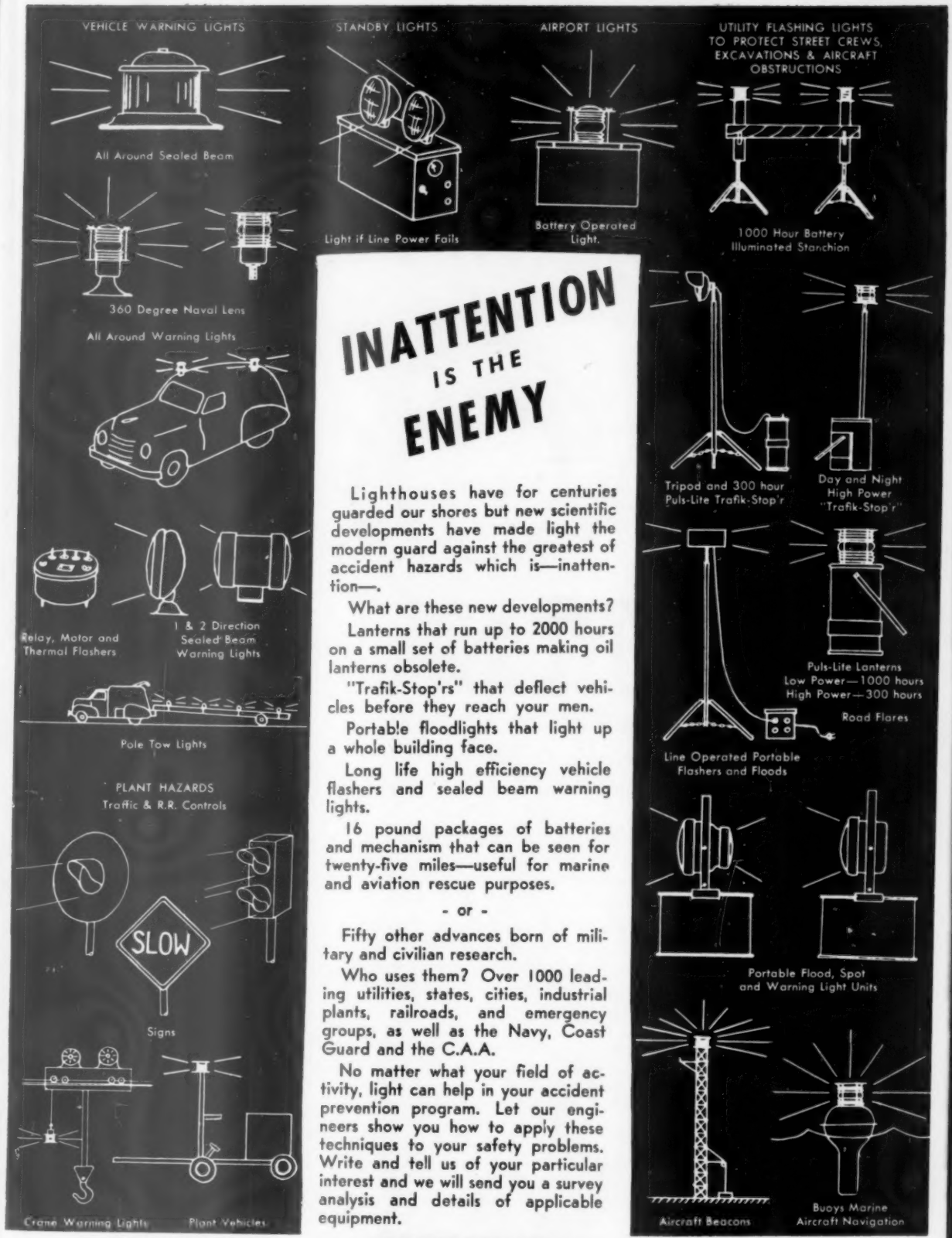
Monthly the safety department issues a series of statistical bulletins on current safety experience. In the general "Safety Report" is a listing of every plant in rank order of safety for the month and year to date, based on a formula combining frequency and severity rates. In addition to frequency and severity for the month and year, the report presents the amount of accident compensation paid in each plant per thousand man-hours worked. In addition to the general report, supplementary reports are published presenting the same type of information and relative standings for plants with departments in such special fields as punch press operations and foundries.

A special issue of the "Safety Report" is published annually to give the final rates and standings for the calendar year. And on this data top corporation management acts promptly to remind local managers that a loose rein is not the same as no rein at all.

To the managers of the plants at and near the top of the year's standings go letters from Vice President Anderson, expressing management's congratulations and thanks for a job well done. To the plants at and near the bottom of the list also go letters from Mr. Anderson, letters that definitely are not congratulatory and which call, implicitly, for answers telling what is going to be done to improve the situation.

In addition to these regular publications, Dave Mould sends out a large volume of material as it becomes available. This may be routine announcements, details on a new device for locking out switches, the names of suppliers of certain equipment, a safety speech by a corporation or plant executive, or any of a score of other types of information. The corporation's top management also disseminates a large amount of safety information directly.

Much indoctrination work is carried on through formal and informal meetings. Two years ago GM developed a comprehensive executive training program entitled "Safety in General Motors," which has now reached the great majority of management men, from the top down to the junior line supervisors. Developed cooperatively by the divisions of the corporation and the personnel



INATTENTION IS THE ENEMY

Lighthouses have for centuries guarded our shores but new scientific developments have made light the modern guard against the greatest of accident hazards which is—inattention—.

What are these new developments?

Lanterns that run up to 2000 hours on a small set of batteries making oil lanterns obsolete.

"Trafik-Stop'rs" that deflect vehicles before they reach your men.

Portable floodlights that light up a whole building face.

Long life high efficiency vehicle flashers and sealed beam warning lights.

16 pound packages of batteries and mechanism that can be seen for twenty-five miles—useful for marine and aviation rescue purposes.

- or -

Fifty other advances born of military and civilian research.

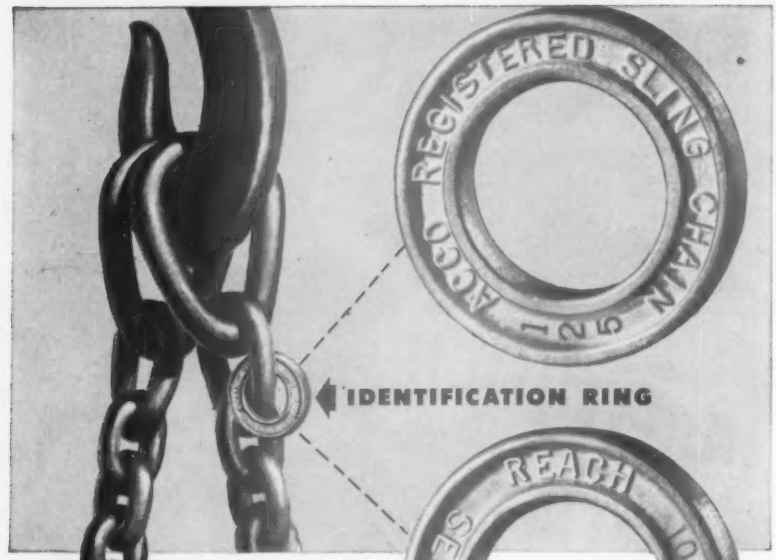
Who uses them? Over 1000 leading utilities, states, cities, industrial plants, railroads, and emergency groups, as well as the Navy, Coast Guard and the C.A.A.

No matter what your field of activity, light can help in your accident prevention program. Let our engineers show you how to apply these techniques to your safety problems. Write and tell us of your particular interest and we will send you a survey analysis and details of applicable equipment.

ENGINEERS MANUFACTURING RESEARCH

JULIAN A. McDERMOTT CORPORATION 40-22 National St., Corona, L. I., N. Y.

LIGHTS TO WORK — LIGHTS TO WARN



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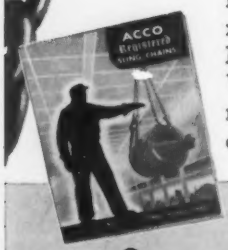

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TRADE MARK

In Business for Your Safety

staff in cooperation with the General Motors Institute, the program covers seven units and requires 11 hours of conference time.

Each year Dave Mould plans and organizes the General Motors Safety Conference, held in Chicago for one day during the National Safety Congress. From small attendance, this Conference has grown to the point where it attracted 280 GM men in 1949. Dave has the top speaking talent and top rank men of the corporation at his disposal, and he makes excellent use of them in laying out his program.

Dave is convinced that the finest part of the safety program is not contained in these meetings with management. It is, rather, the direct contact between each line supervisor and the men of his department on safety issues, one of the points specifically recommended in Mr. Wilson's policy statement.

Having had considerable experience in personnel and employee relations work before concentrating on the safety activity, Dave is acutely aware of the problems involved in maintaining good relations between supervisors and employees. He also sympathizes with the genuine difficulties with which the foreman is confronted in exercising the many and varied functions with which he is charged.

When plant managers first began to insist that foremen regularly contact workers on safety, there was much doubt and uncertainty among supervisors about the usefulness of the idea and even more doubt about the methods to be used. But several years of testing have shown that this contact has done a major service to the corporation, not only for safety, but also for employee-supervisor relations. Records are now kept in the plants of the number of such personal contacts, and the department that falls below the 100 per cent coverage of employees per month is likely to hear about it from plant management.

GM makes extensive use of films and publications to carry safety, health and welfare messages to its employees. Latest example of this method of work is the new, prize-winning sound motion picture, "Safe as You Think." Judged

best in the general safety class by the National Committee on Films for Safety, this GM picture is already on it way to the scores of thousands of GM employees and to millions of citizens in all walks of life. It represents a cooperative project of the safety and public relations staffs of the corporation.

Excellent cooperation at the staff level between the medical and safety staffs is achieved within the Personnel Services Section, to which both Dave Mould and the corporation's medical director are attached. This cooperation, guided by George Jacoby, permits quick resolution of any problems created by overlap between industrial hygiene and safety activities.

The results of the over-all GM safety program are spectacular. In the 20 years, 1930 through 1949, the corporation's frequency rate for hourly rated employees was cut more than 80 per cent while the severity rate dropped almost 60 per cent. In 1949, the frequency and severity rates were at an all-time low for the corporation.

The frequency rate for all employees in 1949 was 2.20 compared with 6.35 for all automobile industry firms reporting to the National Safety Council. On the same basis, severity in 1949 was .373 for GM and .57 for all automobile industry reporters.

The National Safety Council's Award of Honor for Distinguished Service to Safety has just gone to General Motors for the sixth time. It was won for the company's records in 1942, 1943, 1944, 1947, 1948 and 1949.

Receipt of the 1949 award last spring was used as an occasion to bring up the heavy artillery of employee education. *GM Folks*, the corporation's employee magazine, carried a seven-page, heavily illustrated article entitled, "Safety Always Comes First." The article pointed out that GM spends annually in excess of $13,000,000 for its employee safety and health program and considers the money well spent. The award was also announced in 4,200 posters distributed to the plants. Recordings of the award ceremonies were broadcast to 2,500,000 radio network listeners. Newspaper and magazine

An ounce of ~~prevention~~ EAGLE-PICHER INDUSTRIAL FLOOR DRY NO. 85 is worth a pound of cure!

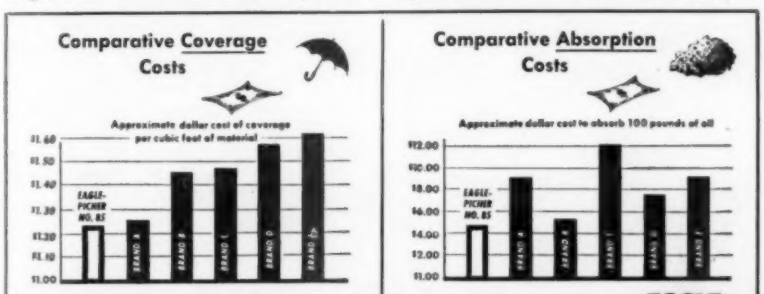
Speed-light Photo by J. H. Brown

Eagle-Picher Industrial Floor Dry No. 85... tops for safety, efficiency and economy!

1. This extremely lightweight, non-combustible, granular mineral compound, sharply reduces the dangers of slipping on wet, oily floors.
2. It retains its granular form even when saturated with liquids because it is chemically inert—insoluble in oil, water or other liquids. Consequently it retains its anti-slip effectiveness for *longer* periods.
3. It can easily be applied by hand, shovel or by mechanical means. Its light color helps brighten dark work areas, resulting in added safety. Packed in 50-pound, multi-wall Kraft paper bags.

Tests prove its performance

Eagle-Picher Industrial Floor Dry No. 85 outperforms five other leading compounds



2084

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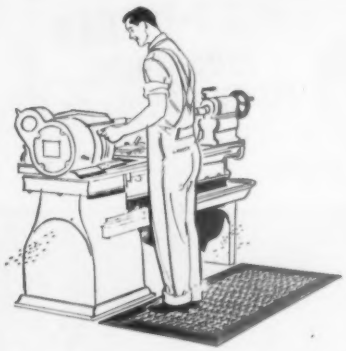
The Eagle-Picher Company

GENERAL OFFICES: CINCINNATI (1), OHIO

EAGLE EP PICHER



ARE YOUR EMPLOYEES HUMAN PILE DRIVERS?

They are if they do their job all day long on hard unresisting floors. The pound of their legs is just like a pile driver. Something must give, and it's the legs every time.

Result **— Fatigue — work suffers, individual production falls off, and accidents are more likely to occur.**

Cure**—Yes, there *is* a cure—and it's so simple, too. It's just a matter of installing Durable fatigue-relieving mats at all your critical jobs. Their cushioned rubber relieves the "pile driving" pound, and your employees will work in comfort and safety.**

A trial on only one job will convince you of the difference. Ask MATTY for facts about Durable fatigue-relieving safety mats.

DURABLE

MAT COMPANY

75 N. Pleasant St. Norwalk, Ohio
2926 16th Ave., S. W.
Seattle 4, Wash.

Dear Matty:—
Please send us information on Durable Safe Mats for .....
.....
.....
.....

SN

publicity on the award appeared in hundreds of publications.

It is not possible to credit any single phase of the safety program with any definite share of the success of the program. But the large picture is clearly one of substantial success and continuing progress.

There are two statements which seem to me to cast special light on the basic nature of the GM program. One of them, written especially for the NATIONAL SAFETY NEWS, appears in a box accompanying this article.

The other is a remark often repeated by GM Vice-President Anderson: "As long as one General Motors employee gets hurt or is affected by an occupational disease, our job is not done."

Accident Costs

(From page 46)

oping averages for each of these items is recommended:

a. *Estimate of average working time lost per trip to the dispensary for first aid.* Departmental time records may show the amount of time each worker is absent from his job for first aid. If so, a random sample of 50 to 100 records of persons known to have received first aid should be selected from different departments. The sample should be designed to include representative cases from all parts of the plant.

If departmental records do not contain this information, it will be necessary to assign an investigator to observe a random sample of 50 or more persons visiting the dispensary. He will record the time required to secure first aid treatment including waiting time in the dispensary, for each person observed. To the recorded time should be added an estimate of the time the employee needs to secure a pass and to travel from his department to the dispensary and return.

b. *Average cost of providing medical attention for each visit.* An estimate of this average can be made most readily by dividing the total cost of operating the dispensary for a year by the total number of treatments given by the dispensary during the year. This, of course, assumes that there is no great difference in the amount of time spent by the dispensary in treating occupational first aid cases and non-occupational illness cases.

c. *Average number of visits to the dispensary per case.* This is readily calculated by dividing the number of treatments of Class 3 injuries in a representative period, perhaps a month or six weeks, by the number of Class 3 injuries reported during the same period of time. To do this, it is of course necessary for the dispensary to record each treatment it gives for a Class 3 injury for the period of the pilot study, even though it has not been customary for them to keep such a record.

d. *The average amount of supervisor's time required per case.* Where possible, this information should be developed by observing the activities of representative supervisors in connection with first aid cases. The investigator should note the amount of time spent in filling out the necessary report forms for each case, the time spent investigating the accident, and the time required to adjust the work schedule for the period the worker is absent from the department. A sufficient number of cases should be studied to be representative both of the activities of supervisors in different departments and of different types of first aid cases.

If it is impossible to make a time study of the supervisor's activities in connection with first aid cases, the only alternative is to secure from each supervisor an estimate of the time he spends on the usual first aid case and average these estimates.

The average total uninsured cost of a case in Class 3 is estimated

TABLE I—ESTIMATE OF 1949 ACCIDENT COSTS

Class of Accident	*Number of Cases*	*Average Cost Per Case (from pilot study)*	*Total Uninsured Cost*
Class 1	34	$ 60.00	$ 2,040.00
Class 2	148	19.30	2,856.00
Class 3	4,000	2.80	11,200.00
Class 4	34	121.30	4,124.00
Total Uninsured Cost			$20,220.00
Insurance Premium			13,000.00
Total Accident Cost, 1949			$33,220.00

an IMPRESSIVE way

TO ADVERTISE YOUR SAFETY PROGRAM

Nowhere will you find a BIGGER, MORE IMPRESSIVE way to advertise your safety program than with JUMBO POSTERS. Their tremendous size . . . their bright colors and stand-out illustrations . . . their dramatic safety messages—everything about these giant safety salesmen is designed to make a big impression on your management and employees.

Jumbo Posters are the same size as the outdoor billboards you see along the road. They measure 11 feet 8 inches wide by 9 feet 11 inches high . . . are printed in two colors . . . and feature short, eye-catching safety messages of a general nature. You can use them outdoors or inside—at your plant entrance or at strategic indoor vantage points. And wherever you post a Jumbo Poster, you can be sure it will command the attention and interest of everyone who passes by. Jumbo Posters are one safety promotion tool that can't be overlooked or ignored. From the president down to the office boy, everyone in your company will be more safety conscious when you use Jumbo Posters.

LOOK WHO'S USING THEM!

Best proof of the value of Jumbo Posters is the list of Council members who use them. At right is a partial list of companies that have subscribed to Jumbo Posters *for ten years or more*—eloquent testimony to their effectiveness as a safety promotion tool.

ALUMINUM GOODS MFG. CO.
ARMCO STEEL CORP.
ARMOUR & CO.
J. E. BAKER CO.
BRUNNER-MOND CANADA, LTD.
CAROLINA POWER & LIGHT CO.
CATERPILLAR TRACTOR CO.
CENTRAL MAINE POWER CO.
DELORA SMELTING & REFINING
DULUTH M'SSABE & IRON RANGE RAILROAD CO.
E. I. DU PONT DE NEMOURS
GENERAL ANILINE & FILM CORP.
JONES & LAUGHLIN STEEL CORP.
GENERAL MOTORS CORP.
GLEN FALLS PORTLAND CEMENT
HERCULES POWDER COMPANY
HUMBLE OIL & REFINING CO.
INTERNATIONAL HARVESTER CO.
JOHNS MANVILLE PROD. CORP.
SPENCER KELLOGG AND SONS, INC.
LEHIGH PORTLAND CEMENT
LOUISIANA POWER & LIGHT CO.
MISSOURI PORTLAND CEMENT
NEWPORT NEWS SHIPBUILDING & DRY DOCK CO.
OHIO-FERRO-ALLOYS CORP.
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SOLVAY PROCESS COMPANY
GEO. T. STAGG COMPANY
STANDARD LIME & STONE CO.
U. S. GYPSUM COMPANY
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FREE WORKING DRAWING

Any competent workman can build a Jumbo Poster billboard. Suggestions for construction will be sent FREE on request. And once you have the billboard, mounting the posters is a cinch. They come in eight sheets for easy handling, are weather resistant for at least thirty days. All you need is a supply of outdoor cooked paste, and a man to mount the new poster once each month.

Make plans today to put up a Jumbo Poster billboard in your plant. You'll be pleased as punch when the first poster goes up, and you see its electrifying effect. Jumbo Posters are the BIGGEST, MOST IMPRESSIVE safety advertising you can buy. Order yours today.

THE NATIONAL SAFETY COUNCIL,
425 North Michigan Ave., Chicago 11, Illinois

Add a BIG *SAFETY* FACTOR to your hoist

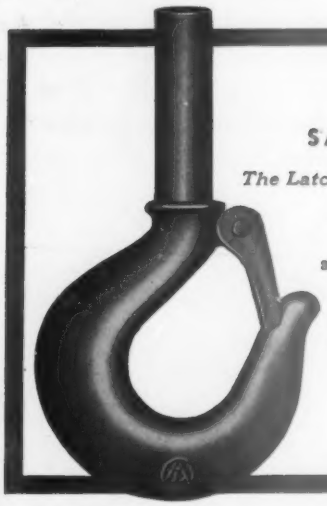
A Laughlin Safety Hook will boost the "safety efficiency" of your hoist many times . . . protecting workers against injury and equipment against damage from accidentally slipping loads.

Make sure your next Hoist is equipped with a LAUGHLIN SAFETY HOOK

Specify "Laughlin Safety Hooks" when ordering new hoists from your distributor. They pay for themselves many times over in accidents avoided.

Play safe — change over your present Hoist Hooks to LAUGHLIN SAFETY HOOKS

Order from your distributor according to the size now on your hoisting equipment . . . or state the capacity of your hoist and he will furnish the correct Laughlin Safety Hook to fit your needs.



LAUGHLIN SAFETY HOOK

The Latch Locks the Load

Drop-forged steel, heat-treated . . . stainless steel spring with pressed steel latch. Cast bronze latch on larger sizes. Available for ½ to 15 ton safe working loads.

Send for Laughlin's famous data book of fittings — ask for Catalog #145. THE THOMAS LAUGHLIN COMPANY, DEPT. 9, PORTLAND 6, MAINE.

***There is a* LAUGHLIN SAFETY HOOK *for every* HOISTING or MATERIALS-HANDLING JOB**

3310
½ to 15 tons

3220
½ to 15 tons

3316
½ and 1 ton

3315
750 pounds

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

from the accumulated data above as follows: the average amount of time lost for a trip to the dispensary, (a), is multiplied by the plant's average wage rate secured from the payroll department to get the average cost per trip for the worker's time lost. To this figure is added the estimated cost of providing medical attention for a single visit (b). This is then multiplied by the average number of dispensary visits per medical treatment case (c) and to this result is added the average amount of supervisor's time required per case (d).

The method of recording costs just outlined is designed to provide estimates of the average uninsured cost per case for accidents causing localized property damage or at most a few injuries. It has already been noted that each accident resulting in death or permanent total disability should be studied separately and that the averages are not intended to include those cases. In addition, extraordinarily costly accidents or fires should not be included in the averages, but should be studied separately. The method of cost investigation for accidents resulting in deaths, permanent total disabilities, or extraordinarily extensive property damage is the same as for others, but the difference lies in the fact that every one of these accidents is investigated separately and no attempt is made to estimate their cost from averages.

Once the averages for each class of case have been established, costs for any period in which a sufficiently large number of accidents has occurred to be representative can be estimated with considerable accuracy by multiplying the average uninsured cost per case for each of the four classes by the number of cases occurring in that class during the period.

To these uninsured cost totals should be added the cost of workmen's compensation and insured medical expense. For companies who are self-insured, this will be the total amount paid out in settlement of claims plus all expenses of administering the insurance. For companies not carrying their

own insurance, it will be the amount of their insurance premiums.

Individual modifications of the method are needed to adapt it to the record keeping systems of different plants. For example, most self-insurers will find it impossible to separate compensated medical expense from dispensary care. In that case, these items should be combined into one, and the dispensary cost omitted from the analysis of non-compensated costs on the data sheets.

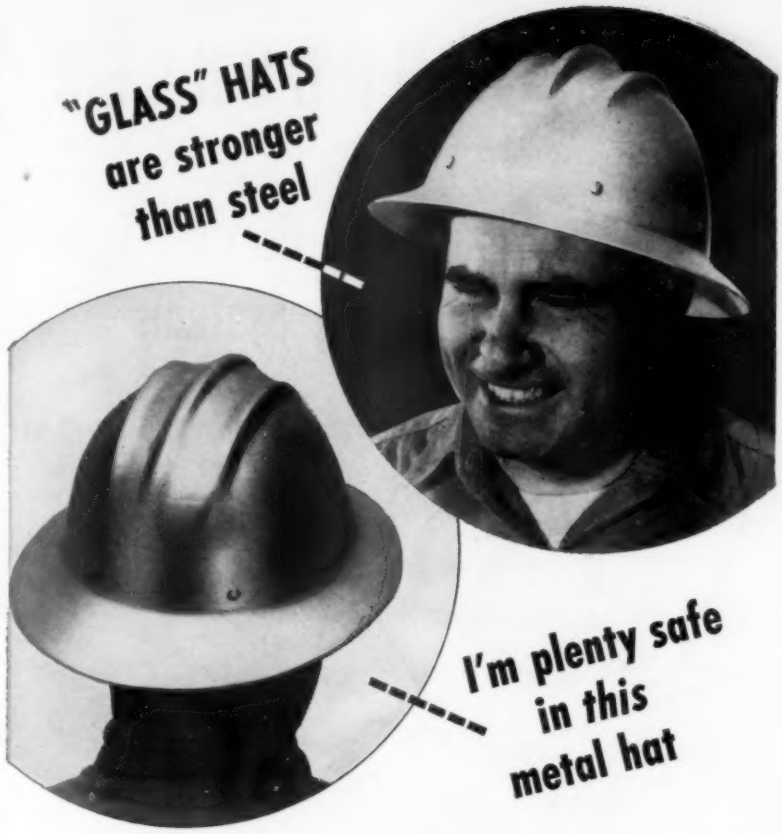
Example of Cost Estimate

The result of a pilot study in making estimates of accident costs for any specified period is illustrated by the following example from one company: During the pilot study, 20 Class 1 cases, 30 Class 2 cases, 50 Class 3 cases and 20 Class 4 cases were studied. The results were:

Type of Case	*Number of Accidents Reported*	*Average Uninsured Cost*
Class 1	20	$ 60.00
Class 2	30	19.30
Class 3	50	2.80
Class 4	20	121.30

During 1949 the company recorded 34 Class 1 injuries, 148 Class 2 injuries, and 4,000 Class 3 injuries. No record of Class 4 accidents was kept after the pilot study was discontinued. Instead, the ratio of Class 4 to Class 1 accidents was used to estimate the number of Class 4 accidents. Therefore, it was assumed that 34 Class 4 accidents occurred during the year. The average cost for each class of injury was applied to these totals to get the results shown in Table I.

Since the final total is the sum of many estimates, it should not be stated in a way which suggests great accuracy. Whether the final figure is chosen as $30,000 or $35,000 depends largely on the analyst's judgment as to whether the various elements have been over-estimated or under-estimated. In this case the analyst judged that the pilot study represented conservative estimates of the average costs, so he reported to the plant manager: "During 1949, accidents cost this company $35,000 in compensation, medical expense,



Glass or Metal...

HARD BOILED* HAT

protection can't be beat

Now you can get the famous Bullard shock-absorbing safety hat design in either molded Fiberglas or special alloy aluminum. Unique ribbed crown is the safest ever built. Greatest protection; light weight; easiest to wear on any job.

"Glass" *Hard Boiled* Hats are available in solid molded colors and white—even a glow-in-the-dark model; passes all tests for electrical shock resistance; impact resistance; is water- and flame-resistant.

Aluminum *Hard Boiled* Hats are handsomely finished in satin-like natural metal. *Passes standard drop* tests; safe to wear where electrical shock is no hazard.

Keep your men better dressed; safer, *cooler* and more comfortable with Hard Boiled Hats.

Simplify stock problems; one size fits all heads; instantly adjustable. Six-second hammock - sweatband change. Chin straps, lamp brackets and winter liner available.

Write for circular and prices

HARD BOILED *Trade Mark Registered

EVERYTHING BULLARD IN SAFETY

E. D. BULLARD COMPANY

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Underwriters' Laboratories, Inc. Listed

Low Pressure Carbon Dioxide Type Fire Extinguishing Systems

ECONOMICAL, EFFICIENT FIRE PROTECTION

from a single storage tank

C-O-TWO now adds another outstanding contribution to modern fire fighting . . . *C-O-TWO Low Pressure Carbon Dioxide Type Fire Extinguishing Systems.* Carbon dioxide stored in bulk under low pressure, means greater fire protection for your larger size fire hazards at less cost.

Flexibility is the keynote of these new type C-O-TWO Fire Extinguishing Systems . . . the low pressure carbon dioxide storage tanks range in capacities from one to fifty tons, and can be operated as straight manual, partially automatic or fully automatic systems.

Flammable liquids, electrical equipment, storage and manufacturing processes can all be made firesafe from a single low pressure carbon dioxide storage tank. If fire strikes the system quickly goes into operation and the fast-acting, non-damaging carbon dioxide extinguishes the blaze in seconds.

COMPLETE CARBON DIOXIDE FIRE PROTECTION

With this new addition C-O-TWO offers complete, fully approved carbon dioxide fire protection . . . hand portables, wheeled portables, hose units, high pressure cylinder systems and low pressure storage tank systems. Whether your fire protection problem is a factory, mill, warehouse, power station or research center you have the assurance of the best type equipment for the particular fire hazard concerned.

Let an experienced C-O-TWO Fire Protection Engineer help you in planning up-to-date, fully approved fire protection now before fire strikes. Complete free information and descriptive literature available on request. Get the facts today!

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Sales and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY

lost time and property damage."
Accident cost studies by National Safety Council

In carrying out the research which led to this pamphlet, several pilot studies were conducted in different organizations. However, insufficient data were accumulated to make possible any national cost estimates which would be applicable to particular industries. The National Safety Council will be glad to receive reports of pilot studies made by other firms. All such reports will be kept entirely confidential, and, if enough are received, they will be combined to develop national averages by industry for the various cost elements discussed herein.

Safe Practices Pamphlet No. 111, "Accident Cost Analysis for Industrial Organizations," is now available on order from the National Safety Council. The price is 35c to members; 70c to non-members; reduced prices for quantity orders.

The pamphlet contains a complete discussion of the elements of industrial accident costs, detailed instructions for making a cost analysis, and illustrations of model forms for collecting cost data.

Trade Associations

(From page 35)

injury losses through correction of the responsible conditions.

The financial losses to the employer, and loss of earnings to his workers, can be measured. The hardship and suffering inflicted upon workers and their families *cannot* even be estimated.

III. Prevention Pays

The direct and indirect costs of accidents present to association members a promising field for effecting savings through association activity. The records of thousands of concerns and many associations prove that it can be done. Those who have joined in the fight against accidents have found two other benefits in addition to cost reduction.

Accidents increase worker unrest and costly labor turnover. An active accident prevention program reduces labor turnover by improving employee morale. The employer avoids being placed at a disadvantage in competitive labor markets.

Association members realize the

value of good public relations. Many business leaders believe that industry and the free enterprise system have suffered because they have undersold themselves to the public. Accident prevention, in terms of both plant safety efforts and leadership in community safety movements, is used by many organizations to foster public goodwill.

The 50-year trend toward safer and more healthful working conditions is plainly evident; further improvements are sure to come. These improvements can best be achieved through constructive action by industry itself. Companies now leaders in the safety movement can well afford to use their influence for betterment of conditions among the less advanced concerns in their industries.

Failure of industry to accept its responsibility will inevitably lead to the alternative of increased governmental regulation. While minimum safety regulations are a proper function of governmental agencies and deserve industry's support, they do not relieve industry of its responsibility or remove its opportunity.

IV. Action Through the Association

The association is in a uniquely favorable position from which to initiate and coordinate action and to secure results. Some of the association's advantages are:

It has the confidence of its members.

It has close contact with leaders of member companies.

It is familiar with the problems and interests of the group it represents.

It has contact with a larger percentage of the total industry than does any more general type of organization.

It can, through these contacts, stimulate action by the smaller businesses which do not participate in more general group movements.

The importance of smaller businesses cannot be over estimated. Although accident rates are being reduced, the gains are mainly in the large plants. Plants with fewer than 100 employees have half the workers—their accident frequency is more than double that of the large plants. Here is where the burden of accident losses rests heaviest.

Smaller businesses, which can best be reached through their as-

Prove to yourself that absorbent

WYANDOTTE ZORBALL TRACKS LESS

Make two piles of floor absorbent. One of Wyandotte Zorball . . . the other of any competitive absorbent. Step on one pile and walk away. Then step on the other pile and walk away.

You'll find Wyandotte Zorball will not track any more than three steps. But the competitive absorbent will track from 20 to 30 steps.

Make this test yourself. Or ask your Wyandotte Representative or Supplier to demonstrate.

Wyandotte Zorball

- *Tracks less*
- *Will not break down readily*
- *Will not become muddy when wet*
- *Holds water and oil longer*
- *Picks up more for less*
- *Will not burn*

THE WYANDOTTE LINE

—all-purpose floor absorbent: Zorball; ***floor wax:*** Anti-Slip Wax; ***germicides:*** Steri-Chlor, Spartec; ***maintenance cleaners:*** Detergent, F-100, El-Bee, Paydet; ***detergent-sanitizers:*** Tri-Bac, Kromet—**in fact, specialized products for every cleaning need.**

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN
Service Representatives in 88 Cities

Wyandotte
REG. U. S. PAT. OFF.

Reduce this No. 1 Hazard

with BERYLCO SAFETY TOOLS

in:

Oil Refineries • Ordnance Plants • Chemical Plants • Grain Elevators and other locations subject to Inflammable and Explosive Dusts, Gases, Vapors, Fumes and Volatile Liquids.

Weigh the value of your plant, equipment—and production—which explosion and fire could destroy, against the low cost protection offered by these high performance beryllium copper safety tools. You can't afford to speculate—with every chance of loss—by using ordinary tools in hazardous locations. Besides being resistant to sparking, Berylco tools are non-magnetic and non-corrosive. They are also extremely serviceable under tough working conditions; retain cutting edges and resist heavy impact.

Write today for Catalog 348 showing the entire line:

Axes — Wrecking Bars — Bull Points — Wire Brushes — Chisels — Star Drills — Hammers Knives — Mallets and Mauls — Picks — Pliers Punches — Scaling Hammers — Floor Scrapers Hand Scrapers — Screw Drivers

Wrenches: Adjustable End, Box, Monkey, Pipe, Ratchet, Socket, Spanner, and special types, and hundreds of other standard and special tools.

BERYLCO BERYLLIUM

The **BERYLLIUM CORPORATION**
READING • PENNSYLVANIA

sociations, represent the majority of American industry. A report by the Department of Commerce indicates that less than 1 per cent of business units employ more than 100 workers.

Smaller business is also the field in which association service is most valuable. It can provide leadership, research, technical services and educational programs on a group basis where they might not otherwise be afflorded by individual smaller business members.

V. It Is Being Done

There is ample precedent for association safety activities. Records of the National Safety Council show some 100 associations active in the safety movement. Among these are:

American Gas Association
American Hospital Association
American Iron and Steel Institute
American Meat Institute
American Petroleum Institute
Associated General Contractors of America
Association of American Railroads
British Columbia Lumber Manufacturers Association
Dominion Brewers Association
Edison Electric Institute
International Acetylene Association
Lead Industries Association
Manufacturing Chemists' Association
Milk Industry Foundation
National Coal Association
National Crushed Stone Association
Ohio Association of Ice Industries
Portland Cement Association
Southern Pine Association
United States Brewers Foundation
Western Retail Lumbermen's Association

Here are three of the many examples of benefits to members through association safety programs:

American Association of Oil Well Drilling Contractors: This Association's members, by cooperating in its program, have reduced average accident frequency 43 per cent in one year. The program includes, among other activities, development of safety standards, a training school for superintendents, a safety contest and a system of safety awards.

Ohio Association of Ice Industries: A $200,000 saving in one year's compensation premiums of the Ohio Ice Industry is reported by this Association. Its members have so reduced their accident losses that compensation rates are less than one-fourth of those for the highest classification when the program was started ten years ago. This estimate does not include savings from

reduction in indirect losses which would be much greater.

Portland Cement Association: In the past 25 years, during which the Association's program has been active, member plants have reduced accident frequency 83 per cent. Individual plants have operated as much as 13 consecutive years without disabling injuries.

The program includes such activities as contests, awards, statistical information, interchange of information, publicity, and plant service by staff safety men.

That association activities pay is shown by the fact that the accident frequency of non-member plants in the industry is almost 11 times that of member plants taking part in the Association's program.

VI. Help Is Available

To conduct a successful program it is not necessary for the association to employ a safety engineer, to conduct extensive research, or to produce numerous costly publications. These services are available from the National Safety Council and its local chapters, insurance companies, and state and federal agencies.

The National Safety Council has the accumulated experience of several decades in the field of industrial and traffic safety, a large technical staff and the facilities for economical mass production of technical and educational safety materials. These facilities are readily available to any association.

Some associations prefer to develop their own materials. In these cases, assistance from the Council staff is readily available. The aims and objectives of the Council and the association are complementary—not competitive.

The program of the association, to be effective, must be tailored to fit the needs of its members. The association is best qualified to determine what activities should be attempted. The Council, therefore, assists only as desired; the association determines its own program activities.

VII. A Plan for Action

Associations with successful safety programs have made them permanent features in their services to members. These groups have found that four initial steps are necessary.

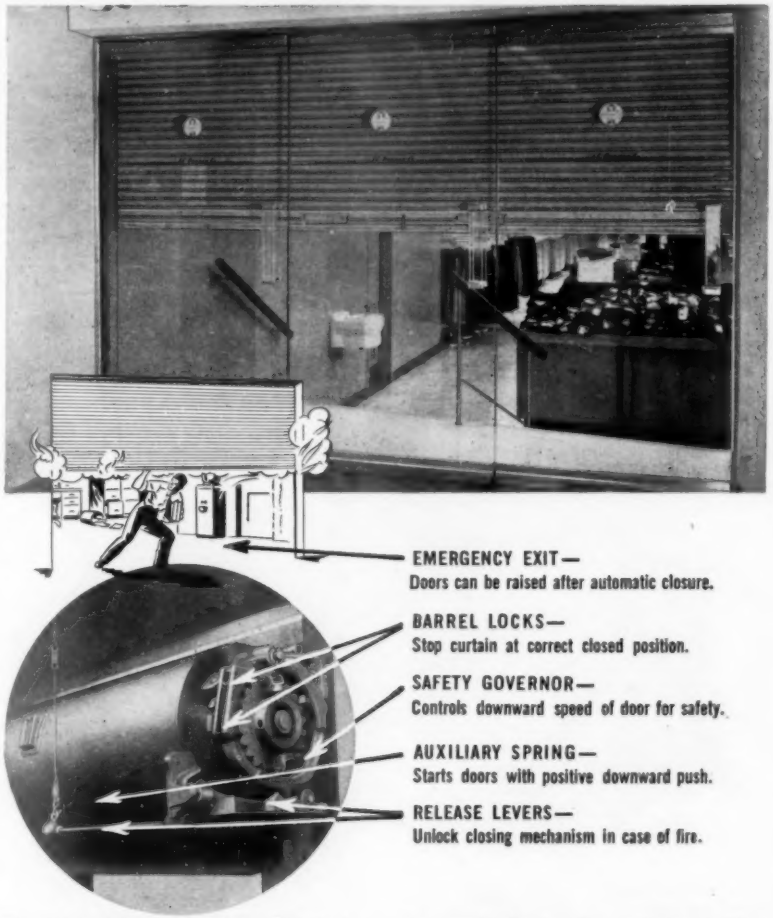
1. Enlist the support of top-management representatives of member companies.
2. Appoint a committee to study the

"AKBAR"

the automatic fire door with

the famous KINNEAR ROLLING FIRE DOORS

ALL THE SAFETY FEATURES


EMERGENCY EXIT—
Doors can be raised after automatic closure.
BARREL LOCKS—
Stop curtain at correct closed position.
SAFETY GOVERNOR—
Controls downward speed of door for safety.
AUXILIARY SPRING—
Starts doors with positive downward push.
RELEASE LEVERS—
Unlock closing mechanism in case of fire.

You get positive, automatic, *safe* protection at windows, doorways and other openings with Kinnear's famous AKBAR Rolling Fire Door.

Approved and labeled by Underwriters' Laboratories, they combat fire loss by closing *automatically*, cutting off dangerous drafts, blocking the spread of flames, confining fires to smaller areas.

When fire becomes threatening, Akbar Doors are *pushed downward by a strong starting spring*, to assure quick, *positive* action.

Yet, downward speed of the doors is controlled by a special safety device, to protect the people who may be passing through the doors at time of closure. And the doors can be opened *after* automatic closure, for emergency exits.

Another Kinnear safety feature prevents the steel curtain from pulling loose from the barrel at top, or from dropping below the lintel in case the floor is weakened by fire.

Akbar Fire Doors remain coiled above the opening, completely out of the way. In many cases, they're completely hidden from view. They can also be used in regular, daily service operation, and can be equipped for motor operation if desired. (Where maximum fire protection is not essential, the regular, non-labeled Kinnear Rolling Doors are preferred.)

The Kinnear AKBAR Fire Door is available in any size. Write for complete details.

Saving Ways in Doorways
KINNEAR ROLLING DOORS

The KINNEAR Manufacturing Co.

FACTORIES

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accident problems of the group, to determine the program to be adopted, and to guide the safety efforts.

3. Designate a staff member to assist the committee in conducting the program. This individual can establish working relationships with such agencies as the National Safety Council, insurance associations, labor departments and other agencies capable of giving assistance. Some of these, which can be of much help in certain fields, are listed below.

Industrial Safety
- American Standards Association
- Division of Labor Standards, U. S. Department of Labor
- State Departments of Labor or Factory Inspection Departments
- National Bureau of Standards

Fire Prevention
- National Fire Protection Association
- National Board of Fire Underwriters

Industrial Health
- American Medical Association
- The Industrial Hygiene Foundation
- U. S. Public Health Service (Division of Industrial Hygiene) and state Industrial Hygiene departments

4. Develop a comprehensive accident prevention, fire protection, and industrial health program, specifically designed to fit the needs of the association's members.

Completion of the initial steps paves the way for starting program activities. The following list includes projects typically used by associations with successful programs:

1. Collect statistical information on the accident experience of members for analysis and interpretation.

2. Through association magazine or bulletin service, acquaint members with hazards prevalent in the industry and effect interchange of information concerning recommended procedures.

3. Publicize the safety activities of the group. The association's regular publications and meetings can be utilized for this purpose.

4. Develop safety training program for supervisors and workers — assist members in instituting such programs.

5. Develop films, posters and other training aids specific to the industry if such materials are not now available. By acting for the group, the association can produce these materials at minimum cost to each member. It can design them for specific application to the industry much better than can a general organization with limited coverage of that industry.

6. Provide for distribution of applicable safety materials such as films, posters, pamphlets, magazines and booklets produced by other agencies.

7. Conduct safety contests with suitable awards or trophies for member concerns. Arrange for impressive presentation of awards with fullest possible publicity.

8. Plan regional conferences for personnel of member plants. One-day meetings, arranged by an association staff man and devoted to the safety problems of the industry, can be valuable to plant leaders.

9. Consider the occupational health problems of the industry.

10. Make available to members employee educational materials on off-the-job accidents. This activity can be beneficial because two workers are killed off the job to every one at work. The worker killed or injured off the job is as great a loss as if killed or injured on the job.

11. Develop fire prevention and protection guides for members.

VIII. Joint Activities with National Safety Council

Development of an effective program is made easy for the association by joining with the National Safety Council in the general fight against accidents—by making use of the Council's specialized facilities. Typical of the activities which have been conducted jointly by the Council and associations are:

1. Associations and the Council gather accident data which are used in the development of new materials and in the preparation of statistical and factual

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NEW! BAR-FLEX BOOTS reduce hazards and fatigue.
- Exclusive Bar-flex sole.
- Anti-slip traction cleats.
- Plain or steel toe which resists 2000 lbs. pressure.
- Shockproof sponge insole.
- Tough multi-ply leg.
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US ROYAL FOOTWEAR

BAR-FLEX SOLE Solid shank support and standing comfort under length of your feet.

U. S. ROYAL WORK SHOE Anti-skid, cleated sole; shockproof sponge insole; waterproof bellows tongue.

U. S. SAFETY STEEL TOE

WHITE DAIRY BOOT 10" high has cleated anti-slip sole, and shockproof insole. Adjustable strap. Plain toe, steel toe.

TERRE HAUTE PAC is a fine general industry boot. Shockproof sponge insole. Plain toe has tire-tread sole. Steel toe has cleated sole.

NEW FLEXON PAC WITH STEEL TOE Easy vamp; snug-leg fit at ankle; leak-proof tongue; cleated-type sole and heel.

HIGH-CUT FLEXON S-t-r-e-t-c-h-e-s on over shoes. Tire tread soles. Tough, tempered rubber.

Also a complete line of Raynster Work Clothing and Sundries

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studies. Exact information on causes is the basis of accident prevention.

2. Associations and the Council collaborate in the development of posters, films, rule booklets, safety instruction cards, technical information and training materials.

3. The Council assists associations when requested in setting up training courses for key personnel of member companies.

4. Associations and the Council serve together on joint committees for the development and revision of codes and advisory standards.

5. The Council encourages association safety contests and helps in their organization.

6. Associations and the Council provide speakers for one another's regional meetings, conventions, and similar activities.

7. The Council helps the association in incorporating accident and fire prevention and occupational health service into their programs.

8. The Council, through its library and consulting services, is a ready source of information when needed on specific safety problems.

9. The wide variety of materials available from the Council forms a basis for a comprehensive safety library for the association. For detailed information reference should be made to the Service Guides available from the Council. Typical examples are:

Technical Information: Safe Practices Pamphlets, Industrial Data Sheets, Detail Sheets and Safety Manuals.

Statistical and Factual Data: Accident Facts Yearbook, Industrial Accident Rates Pamphlets and Accident Facts Memos.

Supervisory Training Aids: Films and booklets on safety in supervision.

Worker Training Aids: Films, booklets, safety instruction cards and safetygraphs and posters.

Magazines: NATIONAL SAFETY NEWS, THE INDUSTRIAL SUPERVISOR, THE SAFE WORKER, THE SAFE DRIVER and PUBLIC SAFETY.

Publicity Aids: Radio and press releases, and cartoon mats for reproduction in association publications.

10. The Council has 27 sections each bringing together those interested in the safety problems of a particular industry. The associations may contribute to and are represented in the work of the section representing its industry. In turn, these sections provide much material of specialized interest to the industry, all of which is available to the association.

In addition to cooperating with associations in the development of general program services, the Council often collaborates with them on special projects. Here are some examples:

The National Safety Council has jointly sponsored with various associations some 19 codes of the American Standards Association.

The Council publication, *Safety in Quarry Operations*, was prepared by members of the Portland Cement Association in their capacity as sectional committee officers of the Council. Collaborating in the work were the National Crushed Stone Association, the Institute of Makers of Explosives, the United States Bureau of Mines, and others.

The Council collaborates actively with the Association of American Railroads in a continuous grade crossing accident prevention program, and other safety activities.

The American Hospital Association and the Council provide hundreds of hospitals with a monthly safety service (including technical information and employee training materials) designed to fit the needs and budgets of hospitals of all sizes.

The American Meat Institute, The Milk Industry Foundation, and The U. S. Brewers Foundation are among other associations with which the Council and its sectional committees have collaborated on special projects. Activities have included development of safety manuals, special posters, employee

NOW AVAILABLE . . . AN ILLUSTRATED SAFETY RULE BOOKLET FOR SERVICE EMPLOYEES

THE SAFETY REGISTER is an inexpensive, pocket-sized rule booklet for cafeteria, restaurant, hotel, and other service employees. It's 18 pages long . . . printed in red and black . . . and illustrated with gay, spritely stick figures. This attractive, compact little booklet teaches service employees the importance of—

proper clothing
personal cleanliness
prompt first aid
good health

—and it shows them how to avoid accidents caused by—

falls
improper material handling
poor housekeeping
makeshift equipment

MEMBER PRICES			
1-9	10-99	100-999	1000 or more
.15	.09	.08	.06

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If your company operates its own restaurant or cafeteria, or if you're in a business that caters to the public, give THE SAFETY REGISTER to each of your service employees. Write for a sample copy . . . or send in your order today.

NATIONAL SAFETY COUNCIL 425 N. MICHIGAN AVE., CHICAGO 11, ILLINOIS

(From the "Northwestern Steel Safety News")

A SCOTT AIR-PAK— got its real test a short time ago when a pipe in the acid tank over in the Galvanizer frame broke. It was physically impossible for any human to get to the valve and shut the acid off without some kind of breathing device that would insure his complete safety. Foreman Ernie Zapf donned the new piece of equipment, put on the boots, rain coat and rubber gloves and stepped right in and shut the valve off. There was not a single injury as a result of the accident. The huge saving in production and wage losses which would have come as a result of acid damage can hardly be estimated. Ernie Zapf will testify that the job was simple and he came out unscathed.

A "HOT SPOT" for the use of this breathing device is in the transformer rooms of the Electric Furnace Department. These rooms are equipped with what is known as a CO_2 fire extinguishing system. Hence, with the CO_2 system discharging in the transformer room it is dangerous to enter the room without a guaranteed supply of air. The air mask is provided to be used for entering rooms when the CO_2 gas had displaced the air.

KING MORENO is shown in the picture wearing the air mask as he comes from the transformer room through the

HERE'S HOW Scott Air-Pak (TRADE MARK) PROTECTS WORKERS in TOXIC AREAS

The experience of Northwestern Steel & Wire Company of Sterling, Ill., is typical of hundreds of industrial plants throughout the country which are protecting workers—and saving production and maintenance dollars, as well—with *Scott Air-Pak* Safety Breathing Equipment. Over 10,000 men are promptly and safely handling maintenance or emergency work in toxic areas — protected by *Scott Air-Pak*. Several types available.

See your Safety Equipment Dealer, or write TODAY to:

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instruction cards, studies of equipment design, gathering statistics, and joint sponsorship of contests.

IX. Basis of Council Collaboration

An Association membership, which provides a regular flow of technical and program information for use by the Association, is available for only $35.00 per year. This membership enables the association to purchase materials at member prices.

The Council, as a non-profit organization, must return full value of dues to its members in services. This limits the funds which can be used for regular free distribution of safety information. For this reason, associations are urged to affiliate with the Council so that the fullest possible service can be rendered.

Primary support of the Council's work comes from business and industry. Direct membership of business organizations should be encouraged by the association as a means of expanding the safety work of the industry.

For smaller businesses, which may belong only to their respective association, the Council has a group service arrangement which permits the association to service the industry with those Council materials which apply. Details concerning this plan will be furnished upon request.

Special services beyond the scope of the regular membership plan are arranged at cost. Each problem requires careful analysis. A suitable plan can be worked out for any given set of conditions.

Inquiry should be directed to the Industrial Department, National Safety Council, 425 North Michigan Ave., Chicago 11.

Ted Meisner Retires

(From page 59)

of Ohio. He was chairman of the Committee on Health and Safety Rules for the State of Illinois, 1937-38, and vice-chairman of the Illinois Manufacturers Association's Committee on Safety, Health and Compensation, 1938-47. For many years he has been a member of the Advisory Committee on Safety of the U. S. Department of Labor.

In the American Standards As-

sociation he has served as chairman of the Power Press Code Committee and assisted in the promulgation of numerous other codes.

Since 1910, Ted Meisner has given many talks at Congresses and conferences and written numerous magazine articles on safety. Over the years he has assembled a collections of slides which depict the progress of more than 40 years in taming the hazards of punch press operation.

Personals

Honored on 90th Birthday

WALTER G. KING, American Optical Company's safety director since 1923 and still active, was honored with a party on his 90th birthday, celebrated on July 22, at Chautauqua, N. Y.

Regarded as the inventor of the modern safety goggle, Walter King has been a leader in the optical field for nearly three-quarters of a century.

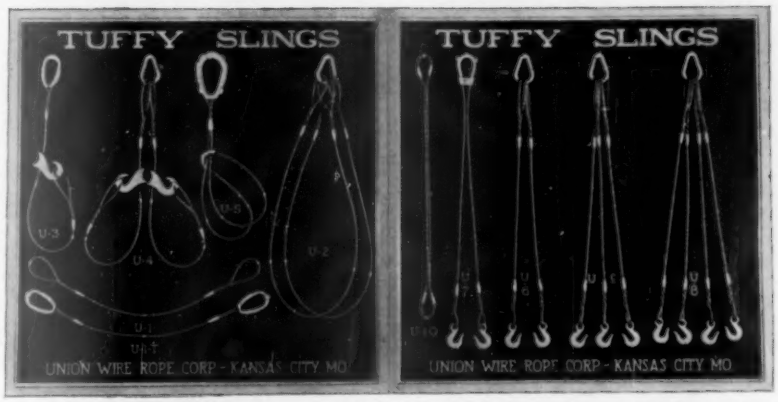
Born in 1860 in Warren, Ohio, Mr. King in 1881 joined the Julius King Optical Company, a firm founded by his father in Cleveland and later moved to New York. Beginning as a salesman, he was elected vice-president in 1892 and president in 1913.

A leading distributor of American Optical Company products for many years, the Julius King Optical Company was merged with AO in 1923.

Widely known in the industrial field for his devotion to the cause of safety, Mr. King has assisted in the development of many different types of impact and welding goggles.

In 1916 the American Museum of Safety awarded him the coveted Louis Livingston Seaman Gold Medal for his eye-protective devices, and in 1926 he was elected president of the National Safety Council. He is an honorary life member of the Council.

HENRY W. JOUETTE, safety director for Magnolia Petroleum Company's Refining Division, has been promoted to mechanical superintendent in charge of main-



SLINGS **Entirely Unlike Any Other in Construction and Performance**

Be Sure To See This Full Line Display Booth No. 11 Stevens Hotel NATIONAL SAFETY CONGRESS

Looking for sling safety at its best? Each Tuffy Sling is tagged with its safe working load and it is proof-tested to twice its safe working load. Its patented, interlaced 9 part wire fabric construction, makes possible eye splices averaging 95% of the fabric strength. Extraordinary flexibility permits tying into knots without material damage. Cutting any one of the 9 parts will not result in stranding. On every kind of load, under all kinds of pulls and with every type of hitch, Tuffy Slings have proved their superiority, universal adaptability and longer service life.

Like many others, you too can prove to your own satisfaction the money saving worth to you of any one or all of the 10 factory packaged, ready to use types.

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SLINGS

Entirely Unlike Any Other

2318 Wycliff St., St. Paul 4, Minn.

CAL-FLOR-DRY Reg. U.S. Pat. Off. **has been used *continually* in many Plants for many years.**

A little goes a long way. Cal-Flor-Dry is economical to use. Its absorptive ratio is exceptionally high—over 120% of its own weight in oils, greases, including soluble, and other liquids. Cal-Flor-Dry keeps floors safe against slipping accidents. It is proved effective also as a fire preventive. Many use it to help prevent dermatitis.

Ask your Jobber Salesman, or write direct.

The FLOR-DRY Company

prevent slipperiness

ON FLOORS WITH SAFE-T-SAN

A SUDDEN SLIP may mean painful injuries. Avoid danger in slippery floors that may mean disabled workers, lost time, costly hospital bills. Use Safe-T-San Non-Slip Floor Polish, which reduces slipperiness of any flooring material while it beautifies and protects the finish. It's easy to apply. Write today for sample of Safe-T-San.

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SAFE-T-SAN
NON-SLIP FLOOR POLISH

DAV-SON BULLETIN BOARDS

Use DAV-SON Cork Back Bulletin Boards for pinning up notices, letters, photos, etc. Many sizes and styles available for your particular requirements.

Write for Special Circular

We manufacture the famous DAV-SON Changeable Letter Bulletin Boards, Safety Displays, Lobby Directories and Name Plates for every purpose.

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ESTABLISHED 1932
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tenance at the Beaumont Refinery. He joined Magnolia in 1918 and became general foreman of the Beaumont welding shop in 1929 and safety director in 1944. At the 1949 National Safety Congress he was elected chairman of the Gulf Coast Division, Petroleum Section, NSC.

Mr. Jouette has been succeeded by PARKER C. FOLSE, previously assistant safety director. Mr. Folse has been employed in the processing field at Beaumont during most of his 23 years with the company.

GILBERT F. TYLER, for the past eight years safety superintendent for Pan-American Airways at La Guardia Field, N. Y., has joined the National Surety Corporation, New York City, as superintendent of the Safety Engineering Division. For the past year Mr. Tyler has been editor of the Newsletter of the Air Transport Section, NSC.

WILLIAM E. LAWRENCE, formerly director of Boy Scouting Service, Boy Scouts of America, has been appointed National director of the Health and Safety Service. He succeeds FRED C. MILLS who has been in charge of the safety program since it was organized in 1931.

Obituary

H. F. IDZKOWSKY

HARRY F. IDZKOWSKY, a pioneer among industrial safety directors, died in Pittsburgh July 14. For 30 years, Mr. Idzkowsky had been directly connected with the safety movement, at first being in charge of first aid for the Mine Safety Appliances Company and in 1927 becoming safety director of the company.

During Mr. Idzkowsky's service as safety director, MSA received many national awards for its safety records. MSA won the National Safety Council's contest in its division four consecutive years and again in the 1948-49 competition. Other awards were received from the Commonwealth of Pennsylvania in 1946 and 1948. The company won inter-plant contests held

by the Western Pennsylvania Safety Council six consecutive times.

Born in Pittsburgh in 1884, Mr. Idzkowsky joined MSA after having been associated with Union Switch and Signal Company. Besides being in charge of MSA's first aid work, he also headed the experimental section of the organization.

Mr. Idzkowsky was a member of the American Society of Safety Engineers and the Veterans of Safety Club.

W. M. POWELL

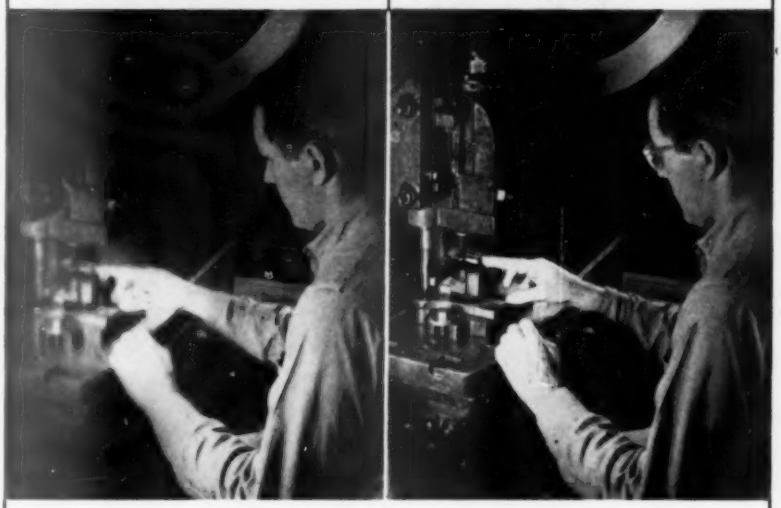
William M. Powell, safety director for Medusa Portland Cement Company, Cleveland, and a former general chairman of the Cement & Quarry Section, NSC, died suddenly August 8.

Mr. Powell's career in safety began in 1912 when he was appointed chairman of a departmental safety committee at South Works of Carnegie-Illinois Steel Company, Chicago, under Arthur H. Young who later became president of the National Safety Council. In August, 1915, he went to E. I. du Pont de Nemours & Co. as safety inspector. Later he became associated with International Harvester Company as employment manager and supervisor of safety at one of the company's Chicago plants.

In 1929 he went to Medusa Portland Cement Company as safety director in charge of safety activities in the company's seven cement plants and other units. Under his direction the company received the first Liberty Bell

HIS WORK MAY LOOK LIKE THIS BEFORE EYECARE

CORRECTED VISION CAN MAKE THE WORK LOOK LIKE THIS



How to get up to 37% Better Production

without adding a Man or a Machine!

Best estimates indicate one out of three workers needs eyecare and that 40% to 60% of goggle wearers need *corrective* as well as *protective* lenses. One manufacturer reports that 9 out of 10 workers increase production when vision is corrected—with spoilage decreased 37%*. Read how better worker vision pays dividends too in fewer accidents, less absenteeism, better morale — write for AO's booklet which shows how much can be saved by a visual correction program—and how it can be done.

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THEY'RE DANGEROUS

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of closing hopper bottom car doors with latch type locks.

Prevent serious injuries. Use the Prescott Safety Tool.

Write today for free folder.

THE TRUMBULL MFG. CO.
WARREN, OHIO

FOR THE DAVIS D-CARTON

2 new FIRST AID "MUSTS"

FIRST AID FOR BURNS

★ KILLS PAIN ALMOST INSTANTLY
★ ANTISEPTIC ★ GREASELESS
★ EXCLUDES AIR

Combines air exclusion, antisepsis, local anesthesia. Non-greasy, water soluble base is the perfect answer to a painlessly removable first aid for burns.

*Americaine Reg. U. S. Pat. Off.

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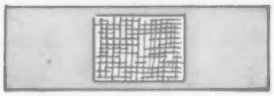
*Americaine furnished in package to fit First Aid D-Carton System.

THE RIGHT DRESSING FOR EVERY FIRST AID NEED

*Band-Aid Patch Dressings 1½" square



*Band-Aid Elastic Adhesive Bandage 1"x3"

*Band-Aid Spot Dressings ¾" Diameter

*The Trade Mark of Johnson & Johnson

● Elastic ● Waterproof ● Flesh color
● Vent hole for aeration ● Sterile

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DAVIS EMERGENCY EQUIPMENT CO., INC.
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FOR VENTILATION, FUME AND DUST CONTROL

FLEXAUST

SPIRAL-REINFORCED HOSE
LIGHT, STRONG AND VERY FLEXIBLE

Flexaust is of proven suitability for a wide variety of suction and pressure uses in ventilation, fume and dust control. **Extremely Easy to Install—Efficient and Economical in Use. SIZES 1¼" to 24" dia.** Various Flexaust types, accessories, and other hose types also available.

BLOFLEX
Non-reinforced collapsible

PORTOVENT
Ring-reinforced retractable

AMERICAN VENTILATING HOSE CO.
Dept. SN-9, 15 Park Row, New York 7, N. Y.
Plant: Amesbury, Mass.
Write for full descriptive data and prices

award from *Liberty* magazine, and the company's record for 1942 won the National Safety Council's award for Distinguished Service to Safety.

Mr. Powell held many offices in the Cement and Quarry Section of the National Safety Council, including that of general chairman 1941-43. He had been scheduled as a speaker at the National Safety Congress in October.

"V" for Victory Against Accidents

During the war, the famous two-finger "V for Victory" sign earned an important place as a morale builder. It meant, "Keep your chin up, keep plugging. Things will be better."

At the Brown & Sharpe Manufacturing Company, Providence, R. I., and on the New Haven Railroad it has been adopted as a safety signal.

To flash two fingers extended might mean, "Think of Safety. You're taking a chance," or "Watch those eyes; you should be wearing safety glasses." In fact, it could be used by anyone to indicate any unsafe practice or condition. The sign, followed by pointing to the practice or condition would be a friendly reminder.

At Brown & Sharpe, the campaign was launched with a poster and some mimeographed material to supervisors. The sign has also been given publicity at the weekly band concert of the plant and is mentioned in the weekly safety meetings for new employees and in conversations with supervision.

B & S Introduces
TWO FINGERS FOR SAFETY
"MAKE IT SAFE"
"DO IT SAFELY"
THIS SIGNAL, FOLLOWED BY THE POINTING OF A FINGER AT ANY DANGEROUS CONDITION OR ACT MEANS -
MAKE IT SAFE - DO IT SAFELY
HELP STOP ACCIDENTS BY USING THIS SIGNAL

Results to date, according to

J. N. Rawson, assistant to the industrial activities administrator, have been interesting and encouraging. Naturally, there has been some joking about the two-finger aspect of the sign but it is becoming recognized as an important safety tool.

The "V" sign has also come into wide use on the Baltimore & Ohio Railroad. A variation of the same idea is the "zero sign," made with the thumb and index finger, meaning "no accidents." It is used by employees at the Weirton Steel Company, Weirton, W. Va.

New Standards for Industrial Trucks

Safe practices in the design and use of industrial power trucks have been established by a nationwide agreement among users, safety engineers, and manufacturers, it is reported by the American Standards Association. The recommendations, representing a consensus of all who are substantially concerned, have been published as a Safety Code for Industrial Power Trucks and approved by ASA as American Standard (B56.1-1950).

The standard applies to industrial trucks of both the driver-ride and driver-lead types, such as platform trucks, tractors, low-lift trucks, high-lift trucks, fork trucks, and special purpose trucks. It does not apply to motor vehicles designed for operation on highways.

The development of these standard practices was proposed in 1946. The purpose was to promote safety of personnel and equipment by establishing authoritative and uniform fundamentals in certain elements of design, and by setting up rules for the operation and maintenance of industrial trucks based on years of experience.

Through establishing uniformity of operating controls and safety devices for all industrial trucks, manufacturers of trucks also contemplated avoiding excessive production costs and selling prices. Thus, adoption of the code in full or in part by states and municipalities instead of their own independently devised safety codes with their varying requirements, would avoid the necessity for "custom building" of industrial

"It's Safe Underfoot"

When Hilco-Lustre Safeguards the Surface

Hilco-Lustre dries hard and bright . . . and non-slippery . . . Quickly—Permanently. It's a tough topcoat that protects the floor . . . stands up against traffic . . . is self-polishing. It's the ideal floor treatment for industrial plants of all types, where safe floors pay off in fewer accidents.

Slip-resistant SUPER SHINE-ALL®

The all-purpose neutral chemical cleaner, safe to use on any surface. Thoroughly dissolves grime and grease without scouring. Cuts cleaning labor 50% because it needs no rinsing.

Slip-resistant SUPER HIL-TONE®

For daily use on the Automatic Dustless Floor Brush. Keeps down dust, doesn't track. Picks up dust instead of distributing it. Leaves a glossy, protective, non-oily film.

Call Hillyard's trained floor Maintaineer for consultation. He gives expert help . . . makes no charge for his services.

Visit the Hillyard booth No. 22 Hotel Stevens Exhibit, NATIONAL SAFETY CONGRESS • October 16-20, Chicago, Illinois

HANDLE WITH HILLYARD CARE!

St. Joseph, Missouri.

The No. 39 Clear Plastic All-Purpose Goggles are moulded of one-piece .060 Lucite, which under ordinary conditions remains clear and transparent. Lucite is recognized for having the best optical qualities among the plastics. Large enough to be worn over prescription glasses. Four grommet ventilators furnish an abundance of air circulation. The fine screen in the grommets is designed to reduce dust penetration to an absolute minimum. Equipped with ½-inch wide elastic headband. Furnished in two sizes—medium and large.

WIDE VISION LUCITE GOGGLES

These goggles find a use in industrial metal plants—whether large or small.

Because of the great popularity of these Lucite goggles, they are carried in stock by most dealers. If your dealer cannot supply you, write us for the name of a nearby dealer who carries these goggles in stock.

sellstrom

MANUFACTURING COMPANY

622 N. Aberdeen Street, Chicago 22, Illinois

trucks. This would result in lower-cost production methods by manufacturers and savings for purchasers.

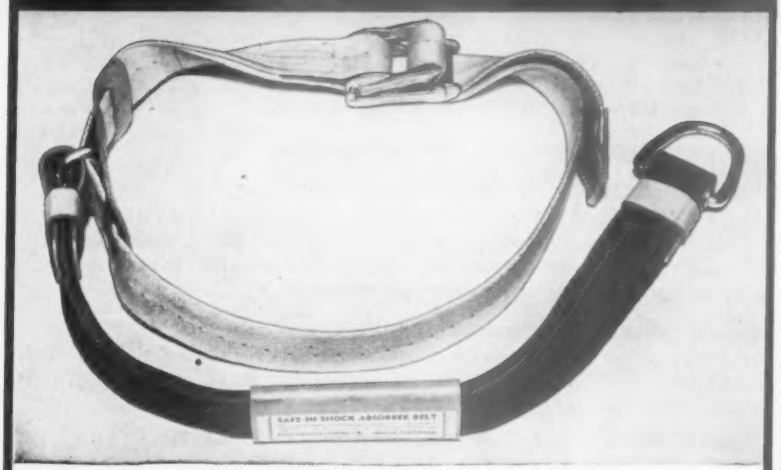
The new standard is in no sense obligatory upon anyone except as it may be adopted by legislative bodies. It is intended to provide a uniform basic code and a guide for state, municipal, and other governmental authorities in formulating safety rules and regulations. The significance of its approval as American Standard is its guarantee that every group substantially concerned with the code has been given an opportunity to participate in its development. As an unbiased document on which there is nationwide agreement, it represents the best available thinking, experience, and engineering.

The new standard was developed under the technical leadership of The American Society of Mechanical Engineers. Membership on the formulating committee included representatives of more than 20 other national organizations, such as Electric Truck Association, Materials Handling Institute, National Safety Council, Congress of Industrial Organizations, U. S. Department of Commerce, National Electrical Manufacturers Association, American Society of Safety Engineers, International Association of Governmental Labor Officials, and fire and casualty insurance organizations.

The standard is also intended for direct use by concerns manufacturing or utilizing industrial power truck equipment. For this purpose it summarizes requirements for safety in design and recommends practices and rules for industrial truck operation. The latter are based upon those that have been formulated and used effectively over a period of years in many manufacturing plants and warehouses where fleets of industrial trucks are operated.

In this connection the standard points out that "the use of industrial power trucks is subject to certain hazards that cannot be

Safe-Hi SHOCK ABSORBER BELTS



THE BELT THAT "PUTS ON THE BRAKE" when stopping a falling man!

Note the Unolyn shock-absorber, between belt and life line. The difference between a fall cushioned with this device and the violent jerk when a man hits the end of his lifeline in conventional safety belts—is the difference between stopping your auto with brakes or stopping it against a stone wall!

Unolyn (of the nylon family) has the amazing ability to elongate, without rebound, to several times its original length under such a load as a falling man. This s-p-r-e-a-d-s the impact—even when steel life lines are used. Men's lives are saved!

Shock absorbers also available with attachments to fit your present belt.

See your safety dealers or write

Safe-Hi PRODUCTS

ROSE MANUFACTURING COMPANY

1731 Arapahoe, Denver 2, Colo.

See the big difference

MSCO 1-inch Adhesive Compress

brings you all these features

LONGER . . . the longest made . . . 3½" . . . fits around and overlaps big knuckles. Won't peel up on ends when hands get wet or sweaty!

★ **NON-RAVEL PAD** . . . no loose threads in wound area . . . looks neat, stays neat!

OFF-CENTER OPENING . . . with turned-back tabs to protect sterile pad when soiled hands open it.

And it's a *large* six-layer gauze pad, a full ⅞" x 1⅛" . . . all gauze, no cotton filler! Get this complete protection . . . ask for No. 100A. Write for samples.

Medical Supply Company

1022 W. State St., Rockford, Illinois

overcome by purely mechanical means but only by the exercise of intelligence, care and common sense. It is, therefore, essential to have competent and careful operators, physically and mentally fit, and thoroughly trained."

The standard consists of an introduction and three parts. The introduction defines and illustrates types of industrial trucks, scope and purposes of the code, and gives a bibliography of related safety codes. Part I gives minimum requirements of construction and design features, such as safety locks for forks, operator's platform guards, wheel and chain guards, automatic brakes, and enclosures for electric controls and motors.

Part II outlines general safety regulations, such as qualification and training of operators, battery charging and changing facilities, marking of aisles, and lighting of operating areas. Part III gives specific rules and regulations that have been adopted in part or in full in many industrial plants and warehouses.

Dry Chemical Extinguishers

(From page 27)

should provide a measure of shielding for the operator, so that he will not be discouraged by the heat and thus discharge the extinguisher at an ineffective range. Dry chemical extinguishers on the market today are extremely simple of operation and as the agent is discharged, it fans out in a wide, far-reaching cloud which provides considerable heat protection for the operator.

How It Works

The extinguishing medium in a dry chemical extinguisher is believed to be carbon dioxide gas that is released from the finely divided particles of sodium bicarbonate. (The CO_2 extinguisher, on the other hand, retains the gas as liquid carbon dioxide.) When the sodium bicarbonate hits the flames it is broken down chemically into carbon dioxide gas and

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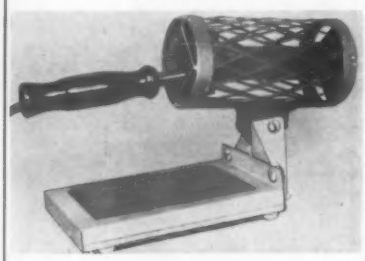

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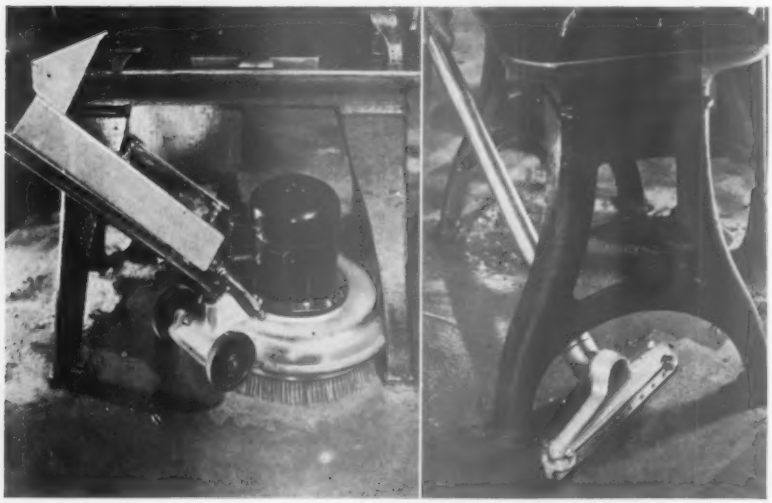
water vapor, the inert carbon dioxide thus being made available at the point where it is needed. This feature gives the dry chemical extinguisher excellent range and efficiency, especially under wind or draft conditions, since it is easier to propel solid particles through the air than gases. The expelling agent is generally a cylinder of carbon dioxide gas in hand model extinguishers and nitrogen gas in larger wheeled units.

Dry chemical was originally marketed years ago in an inadequate form before sufficient engineering studies and tests had been carried out. As a result, it acquired a bad reputation. The chief difficulty was that the powders were not water repellent and thus were subject to caking. In addition, manual shaking of the powder on the fire was obviously not satisfactory on large fires. Exaggerated claims by distributors of dry powder tubes did little to aid their case.

About twenty years ago the first gas pressure expulsion type extinguisher with water-repellent chemical was placed on the market in the United States. This combination of gas pressure expulsion and non-caking chemical was the answer to the dual problem of caking and efficient application which had plagued the dry powder tube. Since that time, the details of the extinguisher have been modified and improved to reach the present high state of efficiency found in various models on the market.

The subject of nozzles has been given a great deal of attention. Factors to be considered include the nozzle's ability to control and its production of a stream having adequate range but still of sufficiently low velocity and spread so that an inexpert user could obtain practically the same results as the expert.

An important consideration is the size of the dry chemical particles which must be produced under carefully controlled conditions so that the particles of optimum size are obtained. The type of gas cylinder seal varies: in some cases



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the valve is held closed by the internal pressure of the carbon dioxide gas in the cylinder, and in other cases a puncture-disk type of closure is used. All of the standard models have received the seal of approval of the various rating organizations, and differences in design are the valuable result of healthy competition among manufacturers.

The early tests were run under wartime pressure in 1942 with only a moderate amount of planning. Additional data were desirable and a series of further field experiments were conducted in 1948 with better planned tests, under controlled conditions, and taking advantage of the new improvements and the increased efficiency of these extinguishers.

In all, 500 gallons of ether were consumed in the tests in which an effort was obviously made to simulate the various types of fires that might be anticipated in plants handling large amounts of ether. It was concluded that dry chemical was the most effective agent for ether fires within the range of extinguishers and that water fog had considerable ability to retard the spread of the fires and to assist in preventing reflashes.

Probably the outstanding feature of dry chemical fire extinguishers is ability to reduce quickly the intensity of a fire. Furthermore, this feature not only applies to fires in flammable gases and flammable liquids but is also true where fires in Class A materials such as paper, wood fabrics, etc., are concerned. As an outgrowth of this unique characteristic, the dry chemical fire extinguisher is now used in cotton mills for preventing flash fires in lint and in reducing water damage to textile machinery such as cotton cards.

The use of dry chemical fire extinguishers in cotton mills is not new. In the September 1925 issue of the *Factory Mutual Record* is the following statement: "A few cotton mills have used dry powder extinguishers successfully to avoid wetting carded clothing in the case of small fires, and for this

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special service they have had a fair amount of success." This comment, of course, applied to the tube-type dry powder extinguisher. In recent years extensive tests have been carried out in the use of gas-pressure type dry chemical fire extinguishers on cotton fires and the experience has been excellent. However, because the dry chemical extinguisher does not have the quenching action of water-type extinguishers and frequently will reduce fires in Class A materials only to the smoldering stage, they should be backed up by water-type extinguishers.

Dry chemical fire extinguishers are not perfect extinguishers for all purposes. Although they give excellent results when used on fires in flammable liquids, flammable gases, and in electrical equipment, and give good results on many Class A fires, they are not going to replace water-type extinguishers because, as mentioned before, they do not have the cooling action of water.

There are some locations where dry chemical fire extinguishers are not the best to use even though fires in flammable liquids or electrical equipment may be involved. For example, the dry chemical has very definite insulating properties which make it suitable for use around live electrical equipment. Where low-voltage contacts are involved, as in a telephone exchange, the dry chemical would prevent the contacts from closing and completing a circuit, although in other electrical locations where voltages from 110 volts and upwards are involved, this has not been a drawback. In locations where delicate instruments are in use, dry chemical fire extinguishers are not normally recommended for primary protection.

There are undeniably locations where the fire extinguishing effectiveness of dry chemical fire extinguishers is offset by the problems which would arise from the dispersing of a finely pulverized material such as dry chemical, even though it can normally be readily cleaned up by brushing or vacuum cleaning. In other loca-

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tions, the fact that dry chemical will neutralize carefully balanced chemical solutions might be a serious disadvantage. Practically, however, no such condition has ever been called to our attention. It is suggested that the plant chemist would be able to advise regarding any possible harmful reactions which could take place if dry chemical were used.

Modern fire protection science must keep abreast of the forward movement of technology in industry. No single extinguishing medium or type of equipment is suitable for all types of services. The safety engineer must have a knowledge of the characteristics and potentialities of all agents and types. Fire extinguishing equipment represents only a small fraction of the total investment in plant and equipment, but the entire future of the organization may depend upon the right type of extinguisher being in the right place at the right time, and being used correctly. For many locations, that means having a dry chemical extinguisher and people who know how to use it.

38th Congress

(From page 39)

speak on the "Operation and Maintenance of Jet Aircraft."

* * *

The Chemical Section keeps up with the hazards of an ever expanding industry in its symposium "Inspecting Chemical Equipment for Safety." Primary emphasis will be given to pressure vessels in this session which will be held Monday afternoon at the Stevens Hotel. On Tuesday afternoon Merrill Eisenbud, director, Health and Safety Division, Atomic Energy Commission, New York, will throw light on the "Safe Handling of Radioisotopes in Chemical Laboratories." The increasing use of the products of atomic research by chemical industries makes "know-how" in this field essential.

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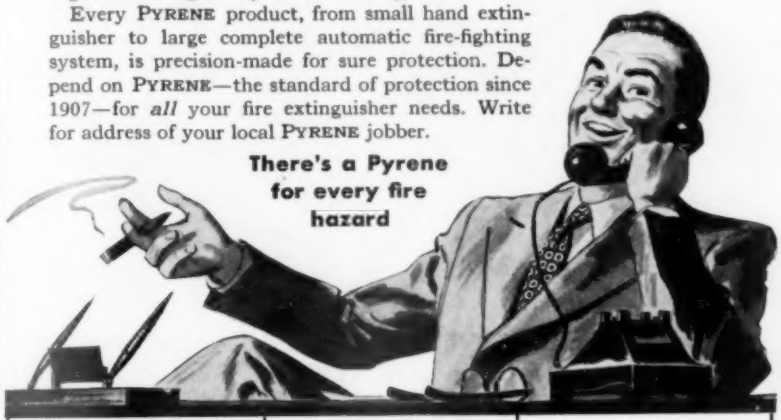

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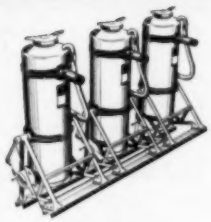

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strata will come in for support as well as criticism at the panel discussion to be held at the Monday afternoon session of the Coal Mining Section. The members of the panel have had extensive experience in roof bolting and will have much to say on its advantages and disadvantages. Mine safety men who are interested in the possibility of using Diesel locomotives for haulage underground will want to hear the remarks of Frank Brophy, assistant general superintendent of the Universal Exploration Co., Jefferson City, Tenn. Mr. Brophy will tell of the use of Diesel locomotive underground in Tennessee at the Monday afternoon session of the Mining Section.

Industrial nurses from throughout the country will be treated to the latest information on one of the wonders of modern medicine. Dr. J. A. Hubata, medical director, Armour & Co., Chicago, will speak on the "Miracles of ACTH" at the Tuesday afternoon session of the Industrial Nursing Section.

Fatalities Fewer

(From page 23)

methods in use in previous years. Deaths numbered 27,300, and the rate was 242. This was 2 per cent less than the rate for 1948, but 1 per cent above the adjusted 1903-07 average rate.

In the age group 25 to 44 years the 1949 rate was 45, a 4 per cent decrease from 1948, and a 48 per cent drop from 1903-07. For children under 5 years there were 51 deaths per 100,000 population, an improvement of 8 per cent from 1948 and 46 per cent from 1903-07. Persons 15 to 24 years old had a 1949 rate of 52—7 per cent under 1948 and 24 per cent under the 1903-07 average. Among people 45 to 64 years old the rate was 61, a 7 per cent reduction from 1948, and 42 per cent from 1903-07.

Regional Death Rates. Of the 46 states reporting accidental deaths in 1949, 17 had death rates below 60, 18 had rates of 60 to 70, and 11 had rates higher than 70. In general, the lowest rates were re-

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corded in the New England states, 51, and the Middle Atlantic states, 54. The average rate for the Mountain states was 87. In the rest of the nation rates varied only from 58 to 66.

The lowest 1949 rates were 39.7 for Connecticut and 41.9 for New Jersey; the highest, 117.6 for Wyoming and 120.7 for Nevada.

Type of Accident. Motor-vehicle deaths ranked first among accident types in 1949, with a total of 31,500 deaths, a decrease of 2 per cent from 1948. Falls ranked second with 21,300 deaths after adjustment for changes in classification methods — the same as the comparable 1948 total. These two types of accidents alone accounted for nearly three-fifths of the accidental death total. No other accident type even approached them in importance. Drownings, the next most important type, numbered 6,700, less than one-third the death total for either motor-vehicle accidents or falls.

Drowning, firearms accidents, and poisons were the only principal types of accident to show no decrease in the population death rate from 1948. Decreases for other major types ranged from 2 per cent for falls and 4 per cent for motor-vehicle accidents to 14 per cent for poisonous gas and 15 per cent for railroad accidents.

Table II gives the accidental death total, the death rate and the change in rate for the principal types of accidents.

Occupational Accidents

Deaths in occupational accidents totaled about 15,000 in 1949, a reduction of 1,000 from the 1948 figure. Disabling injuries numbered about 1,850,000, or 150,000 fewer than in 1948.

These deaths and injuries cost the nation a total of $2,600,000,000 during the year. Of this amount $750,000,000 represents the value of services lost to the nation as a result of disability, even though the worker himself was compensated for a part of the loss. Medical care for injured workers cost $120,000,000 and overhead costs of insurance totaled $450,000,000. The remaining

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$1,300,000,000 represents the estimated money value of damaged equipment and materials, production slow-downs and time lost by other workers not involved in the accidents.

The cost of occupational accidents to industry alone averaged $40 per worker, but this average cost includes lower costs in many organizations where effective safety programs are being used. Where little has been done about accident prevention, the average cost of accidents is usually much higher.

Absence from the job by injured workers was responsible for a total loss of working time of 45,000,000 man-days. This figure does not include time lost on the day of the injury or time required for further medical treatment after return to work. Additional losses, due to reduced productivity of others in the neighborhood of the accident, and delays while damaged equipment was being repaired brought the total working time lost during 1949 to 275,000,000 man-days — equivalent to the working time of approximately 1,000,000 men for a full year.

Death rates. About 26 out of every 100,000 workers in the nation were killed in occupational accidents during the year. This average for all industry results from death rates for individual industries ranging from a low of 14 per 100,000 workers in the trade and service industries to a high of 116 deaths per 100,000 workers in mining, quarrying, and oil and gas wells.

Off-Job Accidents

As usual, many more workers were killed off the job than on the job during 1949. Out of a total of 46,500 worker deaths during the year, about 31,500 or 68 per cent were the result of nonoccupational accidents—in the homes, on the streets and highways, or in other public places. The following table compares the death and injury totals for on-job and off-job accidents to workers and the classification of the off-job injuries:

Place of Accident	Deaths	Injuries
At work	15,000	1,850,000
Away from work	31,500	2,600,000
Motor-vehicle	16,500	600,000
Public non-motor-vehicle	7,800	950,000
Home	7,200	1,050,000

The ratio of off-job injuries to total injuries is even higher in organizations with good on-job safety programs. Several industrial establishments with good safety records have reported that off-job accidents are responsible for 85 to 90 per cent of the disabilities due to accidental injuries.

Motor-Vehicle Accidents

Motor-vehicle accidents in 1949 were responsible for 31,500 deaths in the United States. These accidents also caused 1,100,000 nonfatal injuries, of which 90,000 left the victim with some permanent impairment.

Motor-vehicle travel in 1949 was even greater than in 1948. Deaths, however, were 2 per cent fewer. The death rate per 100,000,000 vehicle miles went down from 8.1 in 1948 to 7.4 in 1949. In 1939 the rate was 11.3, so in ten years it dropped one-third.

Motor-vehicle accidents are estimated to have cost $3,050,000,000 in 1949, of which $1,100,000,000 was property damage.

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(Copy of TIME article sent on request.)

In cities, 9,500 persons were killed in motor-vehicle accidents, a decrease of 10 per cent from 1948. In rural areas, however, the death total was 22,000, an increase of 2 per cent from 1948.

Until the end of the war, the mileage death rate was approximately 11.5 per 100,000,000 miles of travel. Had the same mileage death rate developed in 1949, the death total would have been approximately 48,500, or 17,000 more than the actual number.

Home Accidents

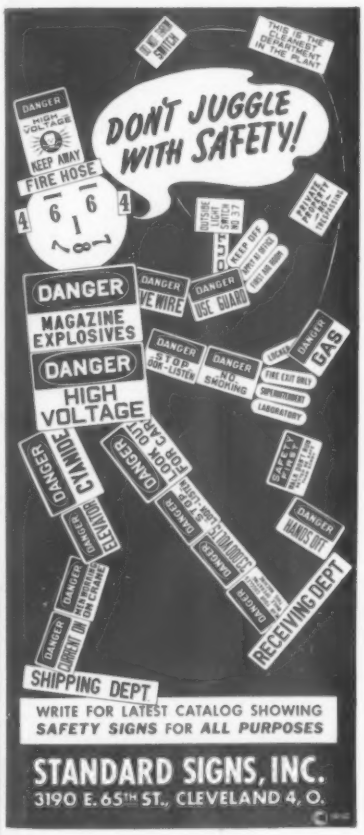
Accidents on home premises in the United States were responsible for 31,000 deaths in 1949 — 500 less than the adjusted total for 1948. Nonfatal injuries totaled 4,650,000. This means that 3 per cent of the entire population of the country suffered disabling injuries in home accidents; and 120,000 of these were left with some permanent impairment. These accidents caused an economic loss of approximately $600,000,000.

The decrease in deaths came principally from the 12 per cent drop in fire burns and injuries associated with conflagrations. There was also a decrease of 200 in deaths from absorption of poisonous gas and 100 in deaths from mechanical suffocation. The reductions were partly offset by increases of 300 in fatal falls, 50 in firearms accidents, and 100 in unclassified home accidents. Deaths from poisons numbered the same in both years.

The leading cause of home deaths continues to be falls. Of these falls well over four-fifths were of persons 65 years or more of age. However, accidental injuries from falls in the home are not exclusively a problem of old age. Older persons do not recover from their injuries as readily as younger persons, but various home accident surveys have demonstrated that falls are a leading cause of injury in the home among all age groups.

Public Non-Motor-Vehicle

Approximately 15,500 persons were killed in public non-motor-



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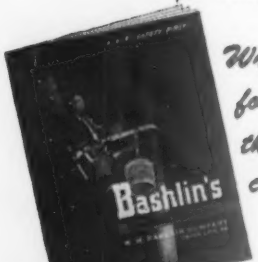
No. BD 14

Removable gaff forged from alloy steel, features triple locking device with standard self-locking tested steel screws



Write for this catalog

W.M. BASHLIN COMPANY

vehicle accidents during 1949. Of these, 3,900 were killed in accidents involving street cars, railroad trains, boats, airplanes, bicycles and other nonmotor road transport vehicles, but not involving motor vehicles. The largest single cause of public nontransport deaths was drowning with a total of 4,700 deaths, not including those associated with transport accidents, or those in which the person was drowned in the course of his occupation. Deaths from falls ranked second with 2,800, deaths from firearms accidents third with 1,050; and fire burns and injuries associated with conflagrations, fourth with 700 deaths.

Railroad

During 1949 a total of 3,530 deaths occurred in railroad accidents. This total includes deaths of passengers, employees, other nontrespassers and trespassers. This is a reduction of 13 per cent from the 1948 total and is the lowest total on record.

Deaths of passengers on trains were reduced 44 per cent to a total of 29. In addition, there were 8 travelers not on trains killed during the year. The passenger death rate in terms of passenger miles traveled was 0.08 per 100,000,000 passenger miles compared to 0.13 in 1948. Trespasser deaths numbered 1,292, a 10 per cent decrease from the previous year.

Deaths of employees on duty totaled 443, a 31 per cent decrease from 1948. The occupational death rate, for Class I roads only, was 0.15—the lowest rate since records have been available. The frequency rate for all injuries—deaths, permanent disabilities and temporary disabilities causing absence of one or more days—was 14.05 injuries per million man-hours worked.

Deaths from grade crossing accidents numbered 1,609. Collisions between trains and motor vehicles accounted for 1,418 of these deaths, a 5 per cent decrease from 1948. This decrease occurred despite the fact that motor-vehicle travel was greater in 1949 than in any previous year.

Aviation

The 1949 passenger death rate for the domestic operations of scheduled air lines was 1.3 per 100,000,000 passenger miles, the same as in 1948. The passenger death rate in 1930 was 28.6, or twenty-two times the 1949 rate. Out of a total of 105 persons killed (excluding one in a propeller accident) in domestic scheduled air line passenger-carrying operations, 93 were passengers, and 12 were crew members.

Deaths in civilian nonscheduled air-carrier service and private flying combined totaled 1,028 in 1949, or 31 per cent fewer than occurred in 1948. Of these, 115 deaths occurred in nonscheduled air-carrier operations, and 913 in other commercial operations and in private flying.

Tools for Program

(From page 107)

feature general safety messages appropriate for all types of readers. The posters, issued one per month, are weather-proofed and come in eight sections for ease in mounting them.

By use of Detail Sheets 114 and 115 suitable billboards to hold the posters can easily be built by plant carpenters. Sample copies free on request.

Member prices for Jumbo Posters: 1 to 9 annual subscriptions, $42.50, each; 10 to 99, $40.00 each; 100 or more, $38.00 each.

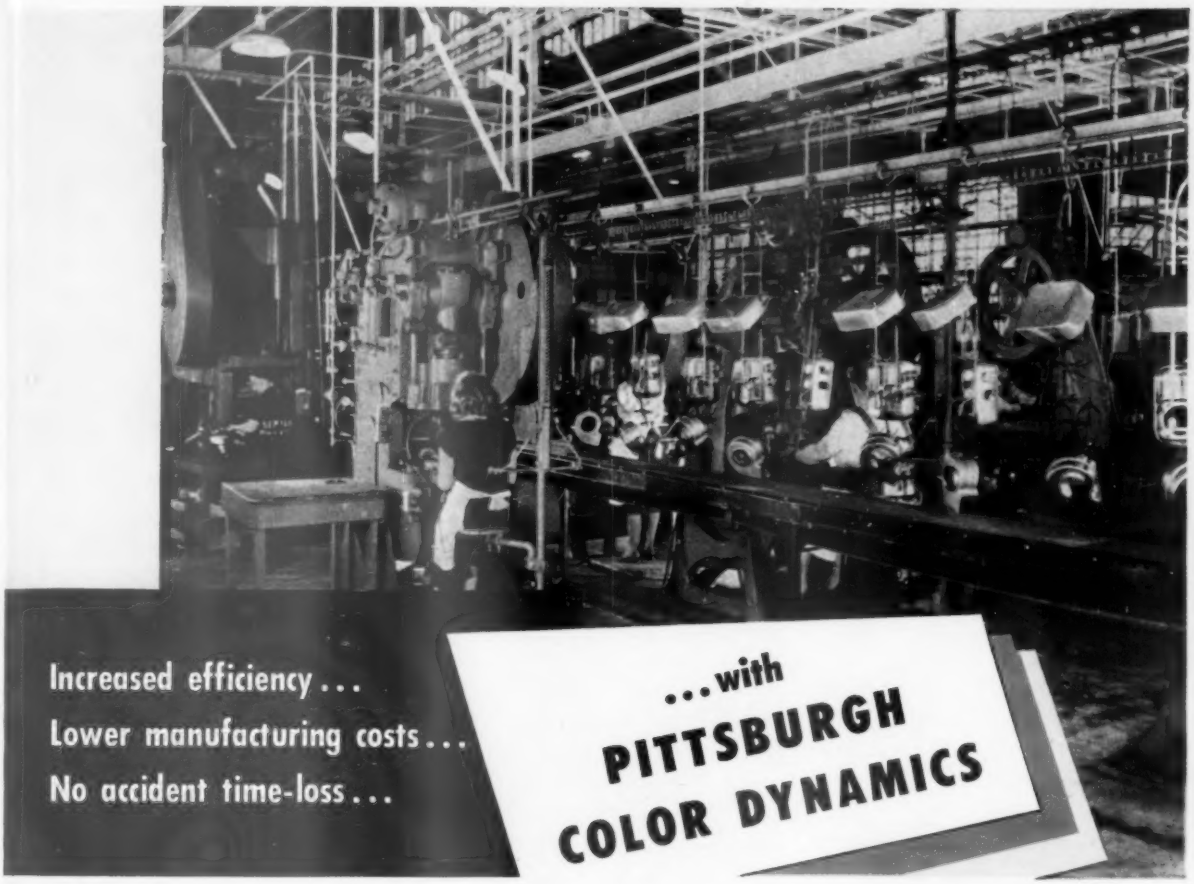
New Safety Reprint

A new two-page Safety Reprint, General No. 12, *The Art of Handling Patients*, is now available. Reprinted from the NATIONAL SAFETY NEWS, this article by Edward C. Holmblad, M.D., can be distributed to members of the plant medical staff, to plant nurses, and to private physicians who handle employee injury cases for the company.

Member prices: 1 to 9 copies, 15 cents each; 10 to 99, 11 cents each; 100 to 999, 7 cents each; 1000 or more, 6 cents each. Data, 1 sheet: 1 to 9 copies, 10 cents each; 10 to 99, 8 cents each; 100 to 999, 7 cents each; 1000 or more, 6 cents each.

Operation Safety Leaflet

The title of the four-page September Operation Safety Leaflet is *Teen-Agers Follow Your Example*. For complete information about the Operation Safety kit for September, write the Traffic and Transportation Division of the Council.



Modern painting system brings benefits to management and workers alike in Automotive Heater Division of Eaton Manufacturing Company

EATON Manufacturing Company of Cleveland, Ohio, is proving—by actual experience—how Pittsburgh COLOR DYNAMICS benefits management and workers alike as it *increases the amount of work per man-hour and the number of man-hours per worker.*

● **Eaton produces** a variety of parts for the automotive industry. Its vast truck and car heater plant is one of the world's largest.

Late last year this entire heater plant was repainted according to COLOR DYNAMICS. Following the principles of the *energy in color, focal* colors were painted on operating parts of machinery and *eye-rest colors* on stationary parts to aid workers to see their tasks better and to reduce eye fatigue. Walls and ceiling were finished with *morale-building* colors to provide additional eye-rest areas. *Safety* colors were used to reduce accident hazards.

● **"As a result of repainting** according to COLOR DYNAMICS", reports W. A. Mattie, superintendent of the Heater Division, "we have noticed improvement in operating efficiency, employee morale and general plant cleanliness.

"When our plant was a dull gray, workers seldom bothered to pick up small parts used in assembly operations. They were usually swept up and discarded. Today, employees are so proud of their clean surroundings they pick up these items, effecting worth-while savings for us.

● **"By increasing** our efficiency, COLOR DYNAMICS has helped us to cut manufacturing costs. We think the 20 percent reduction in absenteeism is also directly traceable to the new color plan. Nor have we had a single hour of lost time because of injury since we repainted."

COLOR DYNAMICS Engineering Study for your plant FREE!

For a complete explanation of what Pittsburgh COLOR DYNAMICS is and how it works in industry get our free, profusely illustrated booklet.

Better still, let us show you exactly how to apply it in your plant. We'll be glad to submit a scientific color engineering study FREE and without obligation.

There's a trained color expert at each of our offices located in all principal cities. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have our COLOR DYNAMICS representative see you at your convenience. Or send the coupon below.

SEND FOR A COPY OF THIS BOOK!

Pittsburgh Plate Glass Co., Paint Div., Department NS-90, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your Booklet *"Color Dynamics In Industry."*

☐ Please have your representative call for a Color Dynamics Survey of our properties without obligation on our part.

Name_____

Street_____

City_____ County_____ State_____

PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

SAFETY POSTERS

from
NATIONAL SAFETY COUNCIL

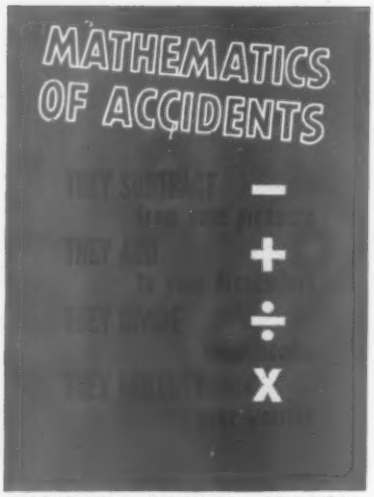
IMPORTANT

All posters displayed on these pages, except the jumbo poster, will be available through 1950, and may be secured as a part of N.S.C. membership service, or by purchase.

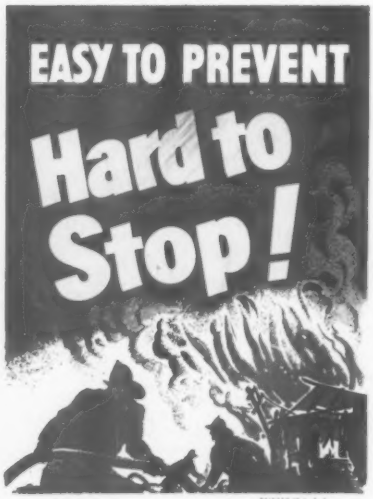
Posters numbered 8800 and up are new posters. Others are among the 774 posters shown in the 1950 Poster Directory.

Write to Membership Dept. of N.S.C. for further information.

8831-A 8½x11½



6661-A 8½x11½



9118-A 8½x11½

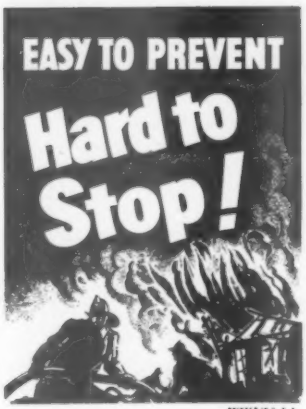
8466-A 8½x11½

8307-A 8½x11½

8484-A 8½x11½

Electrotypes or poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors)
(Available only in sizes indicated)

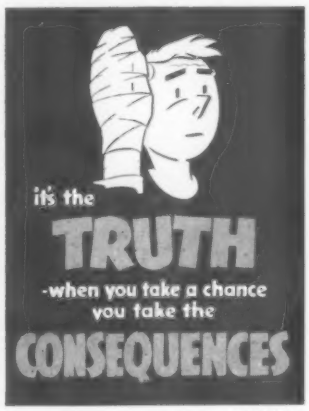


NATIONAL SAFETY COUNCIL

9109-C **25x38**

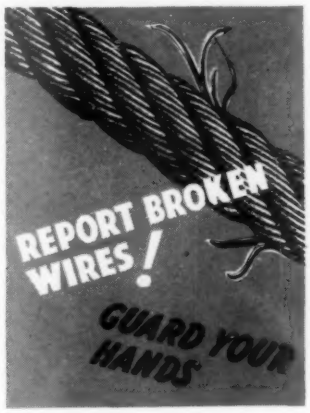
JUMBO POSTER for OCTOBER 1950

Jumbo posters 9′ 11″ by 11′ 8″ in size, designed for outdoor use, are issued monthly. They are available to members for $42.50 annual subscription.



NATIONAL SAFETY COUNCIL

8986-B **17x23**



NATIONAL SAFETY COUNCIL

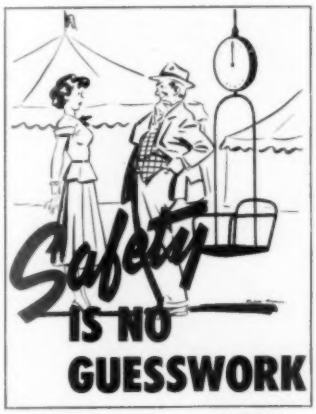
9062-A **8½x11½**

NATIONAL SAFETY COUNCIL

9019-A **8½x11½**

NATIONAL SAFETY COUNCIL

9083-A **8½x11½**



NATIONAL SAFETY COUNCIL

9092-A **8½x11½**

NATIONAL SAFETY COUNCIL

9112-B **17x23**

See box on page 102 for information about these and other National Safety Council posters.

Posters below are printed in two or more colors)
(Available only in sizes indicated)

NATIONAL SAFETY COUNCIL

8575-A **8½x11½**

NATIONAL SAFETY COUNCIL

9101-A **8½x11½**

NATIONAL SAFETY COUNCIL

9063-A **8½x11½**

NATIONAL SAFETY COUNCIL

8491-A **8½x11½**

NATIONAL SAFETY COUNCIL

8245-B **17x23**

NATIONAL SAFETY COUNCIL

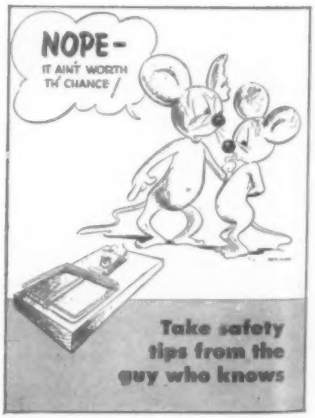
8598-B **17x23**

NATIONAL SAFETY COUNCIL

9093-A **8½x11½**

NATIONAL SAFETY COUNCIL

9085-A **8½x11½**



NATIONAL SAFETY COUNCIL

8748-B **17x23**

See box on page 102 for information about these and other National Safety Council posters.

Posters below are printed in two or more colors)
(Available only in sizes indicated)

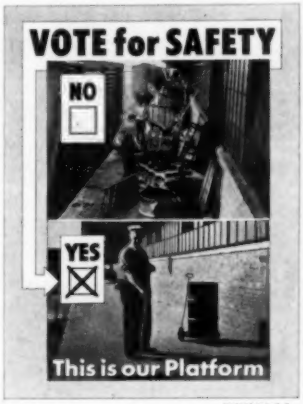
8760-A 8½x11½

9107-A 8½x11½

8607-A 8½x11½

8747-A 8½x11½

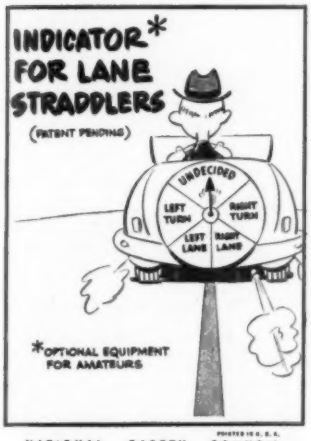
8422-A 8½x11½



8494-B 17x23

Prevent SQUEEZE PLAYS on Right Turns
Give turn signals and check right mirror
keep close enough to the curb to block out other vehicles
NATIONAL SAFETY COUNCIL

V-9104-A 8½x11½



V-9103-A 8½x11½

V-9105-B 17x23

See box on page 102 for information about these and other National Safety Council posters.

of the motor transportation in-

floor, the range was from 65 mil-

an adequate fitting could be ac-

Fire Films

To train employees in the principles of fire prevention and in the methods of fighting fires, two Council films have been prepared. One, *The Fire Thief*, is a complete revision, and the other, *Cause for Alarm*, is brand-new. The films are available in both the 16 mm slide motion and 35 mm sound-slide versions. The latter includes trailer frames for use in group discussion.

In the revision of *The Fire Thief* the material has been better organized and obsolete frames have been replaced. The film deals with the causes of industrial fires and shows how safe practices will eliminate those causes. Unsafe conditions and practices are pointed out, and special emphasis is placed on the need to "stop fires before they start."

How improper handling and storage of flammable liquids, defects in electrical equipment, sparks from a welding torch, open heating equipment, smoking, and poor housekeeping can cause fires is explained. The need for following plant fire rules is emphasized.

Cause for Alarm, on control of fires, covers classes of fire extinguishers and shows in simple fashion how they are used. The theory of combustion is explained to demonstrate how different types of fires can be extinguished.

The film is motivational as well as instructional, pointing out what a fire in the plant would mean to the worker himself. The audience is told what to do if fire starts, how to turn in an alarm, and how to meet local situations in an emergency. Workers are encouraged to know and follow the specific rules in their own plant or department.

New leader's manuals have been prepared for both films, for use in group discussions. Photoscript booklets for distribution to employees are also available.

Prices of the films will be sent upon request.

New Safetygraph

Just off the press, Safetygraph No. 17, *Does Your Accident Show?*, is concerned with attitudes which lead to accidents. It is designed to show employees, in clear, simple, and forceful fashion, the reasons why people pull boners that can lead to injury. By way of introduction, mention is made of the fact that people often do not hear, see, speak, think, or know safety.

The Safetygraph then gets down to the following specific personal causes of accidents, illustrating and discussing each: being "safety lazy," failing to follow rules and to do the job the right way, engaging in horseplay, going at too fast a pace, being distracted, losing one's temper, failing to think, hating to make mistakes, not feeling up to par, neglecting to remove accident causes, and hesitating to ask questions.

This Safetygraph, like the others in this series of visual training aids, is 18 by 24 inches and is printed in color. On one side of each sheet are cartoons for the audience to study, and on the other side are printed remarks for the leader to use.

Member prices: (Safetygraph and easel), 1 to 9 copies, $13.25 each; 10 to 99, $12.50 each; 100 or more, $12.00 each; (Safetygraph without easel), 1 to 9 copies, $10.00 each; 10 to 99, $9.50 each; 100 or more, $9.00 each.

Wildcats and Clocks

Two more of those vividly colored, brief and breezy leaflets on health and safety subjects have been turned out. The first two, *Happy Vacation* and *Driver's Lucky Seven*, have been gobbled up in great quantities by members.

The new ones are *Whip Your Weight in Wildcats*, a smartly cartooned 8-page folder on ways to stay young enough to whip your weight in wildcats. The emphasis is on moderation, for young fellows who want to stay young, and old fellows who shouldn't let themselves get older. It's highly acceptable common sense.

Safety 'Round the Clock is the same kind of booklet, with interest in safety extended to the home and to the worker's family. Written with an eye to management's concern for the label "paternalism," it has carefully sidestepped any implication that the recommended safe conditions and safe practices at home are anything but the worker's own business.

Member prices per leaflet: 1 to 9 copies, 5 cents each; 10 to 99, 4 cents each; 100 to 999, 3 cents each; 1000 to 4999, 2½ cents each; 5000 to 9999, 2 4/10 cents each; 10,000 to 24,999, 2 3/10 cents each; 25,000 or more, 2 2/10 cents each. Samples on request.

Why Back Into Trouble?

There's good news this month for safety and training directors of the trucking industry. Just off the press is the first motor transportation Safetygraph produced by the National Safety Council. It hits at one of trucking's chief accident problems—backing accidents, and is entitled "Why Back Into Trouble?"

For the information of fleet safety directors who have never used them, Safetygraphs are prepared illustrated talks on specific accident problems. The Safetygraph is 12 spiral bound pages 18 by 24 inches which rest on an easel facing the class. Standing behind the easel, the instructor reads the prepared safety talk. The facing page carries cartoons, diagrams, and photographs in color to illustrate the salient points of the talk.

"Why Back Into Trouble?" was written and edited by the staff of the Motor Transportation Bureau. Additional Safetygraphs are being planned for other phases

of the motor transportation industry.

Members may purchase the new Safetygraph, No. 101, complete with easel for $13.25.

Jumbo Poster Billboards

Two new Detail Sheets showing construction details for two different types of jumbo poster billboards are now in stock. No. 114 is entitled "Jumbo Poster Billboard—Steel Cantilever Type," and No. 115, "Jumbo Poster Billboard—Wooden 'A' Frame Type."

Jumbo posters, which are 11 feet 8 inches wide by 9 feet 11 inches high, are designed for use at plant entrances or in other locations about the grounds where they will catch the attention of not only the workers but also the public. The three-color illustrations

—Turn back to page 100

Shoe Fitting with X-Ray

(From page 33)

distance of 5 feet from the machine and 18 inches above the floor, the range was from 65 milliroentgens per hour to 160 milliroentgens per hour, with an average of 114 milliroentgens per hour. These readings should be compared with the commonly accepted maximum allowable exposure of 12.5 milliroentgens per hour per 8 hour day.

While the values noted were generally excessive, it must be borne in mind that exposures to sales people are short, varying from 5 to 55 seconds per exposure, and that the averages obtained by the use of the dosimeters indicate that the operators receive a dose of approximately 1 milliroentgen per viewing.

These readings were obtained during a slack season of the retail shoe business. Under conditions of peak business, it is possible that operators may receive excessive exposures. This is particularly true where one operator performs all the viewings for a group of sales people.

It was the general consensus of the people doing this work that an adequate fitting could be accomplished in 5 seconds. This was corroborated by means of a stop watch. However, the operating range of the automatic devices for limiting the length of individual exposure varied from 5 to 55 seconds. In some cases these devices were inoperative. In other cases, the safety feature of the timing device was offset by the operator repeating the exposures on the same fitting.

Since adequate fitting can be accomplished in 5 seconds, it is believed that timing devices should be rendered operative and should be set for a maximum of 5 seconds. This exposure time when used in conjunction with the factors to be discussed, will result in a dosage to the person's feet of approximately 1 roentgen per viewing.

While some of the newer machines are equipped with three switches which vary the intensity of radiation, the lowest being intended for use for children, medium for women, and the highest

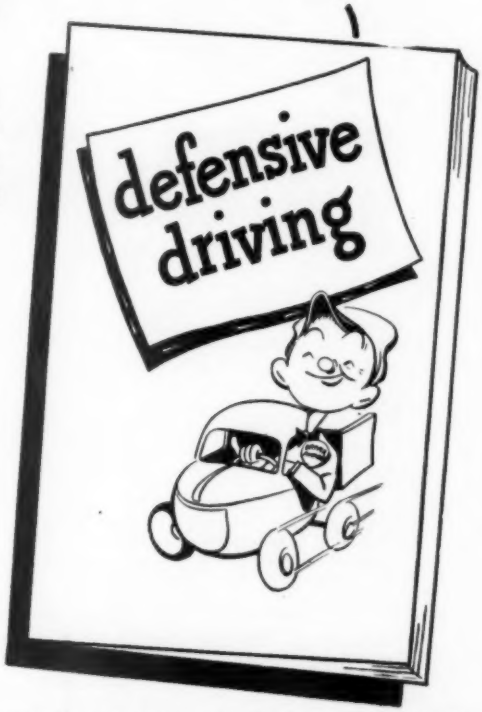
TEMPTING READING

FOR YOUR DRIVERS

Defensive Driving is one safety rule booklet you can be sure your drivers will read. Not because they have to . . . but because they'll WANT to. Its humorous illustrations by Walt Ditzen make it so tempting they can't resist.

There's a Walt Ditzen cartoon on all 24 pages of this pocket-sized booklet. Each cartoon illustrates a safe driving fundamental. Collectively, they teach your drivers how to avoid accidents "caused by the other fellow."

Make sure your drivers know and practice the rules of Defensive Driving. Order your copies of this fun-to-read safety rule booklet . . . today.



Member prices

(In ordering please specify "Truck" or "Bus")

1 to 9 copies—.15¢ each
10 to 99 copies—.09¢ each
100 to 999 copies—.07¢ each
1000 or more copies—.05¢ each

Non-member prices are double Member prices

NATIONAL SAFETY COUNCIL **425 N. MICHIGAN AVE., CHICAGO 11, ILLINOIS**

for men, it was found that in many cases the switches to vary the intensity of radiation were not properly utilized. This may result in an excessive exposure to children.

According to one manufacturer, the intensity of radiation varied from 5 to 7 roentgens per 10 second exposure, depending on which switch was used. Dr. Charles R. Williams of the Harvard School of Public Health has found that for an average exposure of 20 seconds, doses ranging from 10 to 116 roentgens could be delivered to the feet of a customer, and repeated fittings would increase the exposure in proportion to the time. These values are in excess of our recommended maximum exposure value of 1 roentgen per viewing.

In machines operating to give excessive intensities of exposure, children, due to their short stature, receive essentially whole body radiation, whereas in an adult the radiation is confined principally to the feet and legs. Because of this factor, radiation should be reduced to a minimum. Since children's footwear, size of their feet and bones are smaller than those of adults, a lower intensity is adequate to produce a satisfactory image on the fluorescent screen. Similarly, women's footwear is usually considerably lighter than men's, and the size of the foot and bone structure is similarly smaller.

A study was made of the current utilized by the X-ray tubes and was found to average 4.7 milliamperes, the range being from 2.0 milliamperes to 7.5 milliamperes. It is recommended that the current consumption of the X-ray tubes be limited to 3 milliamperes. Later, when checking the operating current of some of the machines being reconstructed, it was found that a satisfactory image was produced with a current of not more than 2 milliamperes.

In some cases, it was found that the fluorescent screens were of inferior quality, possibly caused by the age and use to which they have been put, necessitating higher intensities of X-rays to obtain proper viewing. All machines were found to be equipped with aluminum filters superimposed on the footboard. In many cases, due to repeated contact of shoes, these filters were worn thin and in need of replacement.

As a consequence of these findings, it is our belief that the following practices should be adopted:

1. The X-ray tubes should not be operated at a current in excess of 3 milliamperes;

2. Fluorescent screens of a quality at least equal to that of Patterson Screen No. B-2 should be used;

3. These screens should be replaced when sharpness of the image decreases; and

4. Aluminum filters at least 1 mm. thick should be provided and either located beneath the foot support or covered with a protective material to prevent wear.

It was noted that the majority of the foot openings were much larger than necessary, and thus tended to increase the amount of

New, Improved Foam-X Conditions Sore, Tender Feet

Foam-X is an amazing, quick-acting foot conditioning application for shower room use . . . MILD and PLEASANT. A Texas manufacturer's report calls Foam-X "A Godsend for sore, blistered feet." (Full text on request).

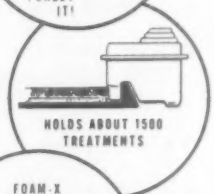
Foam-X is UNCONDITIONALLY GUARANTEED. If two weeks of daily use of Foam-X fails to step up skin resistance to fungus attack and so stop athlete's foot, *you owe us nothing.* YOU TRY IT BEFORE YOU BUY!

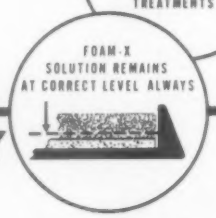
Nothing Else Like MIRACLE MAT!
...Fill It and Forget It!

The new Foam-X Miracle Mat is the most important new development in shower room foot treatment in years.

Miracle Reservoir eliminates nuisance of daily mat refilling . . . holds almost one gallon of Foam-X solution . . . automatically feeds the sponge rubber mat as Foam-X is used. Solution in mat remains at same level always . . . not *too full, not too dry,* but JUST RIGHT. No more SPLASH, no WASTE, *NEVER AGAIN A DRY MAT.* What's more, Miracle Mat saves up to 9/10's of serviceman's work. One filling of Miracle Reservoir holds about *1500 foot treatments* . . . every bather is INSURED A 100% EFFICIENT FOAM-X FOOT CONDITIONING TREATMENT . . . EVERY TIME!

Write today for our trial plan. If two weeks use of a Miracle Mat fails to make every bather in your shower room Foot-Happy, you pay nothing— . . . YOU JUDGE THE TEST.





FOAM-X COMPANY
334 W. Alamar Avenue • Santa Barbara, California
(Eastern shipping depot — Huntington, Ind.)
In Canada — Safety Supply Company — Toronto

scatter radiation. In one of the newer machines, a 1/8 inch steel template is used to reduce the size of the foot opening without interfering with the insertion of the feet and shoes. The foot opening should be reduced to the minimum practicable size.

One store that had a machine that leaked excessively authorized the shielding of the interior of this machine with a lead lining. Experimentally, it was found that 1/16 inch thickness of lead reduced the amount of scatter radiation to well below the maximum allowable exposure of 12.5 milliroentgens per hour and that 1/8 inch thickness of lead reduced the amount of scatter radiation to a negligible quantity. It is therefore recommended that the machines be constructed or reconstructed so as to reduce scatter radiation below the harmful level of 12.5 milliroentgens per hour.

In some stores, the X-ray machines were so located and oriented that greater scatter radiation coming from the foot opening was directed toward areas where other employees were working. In some cases these employees could receive a greater dosage than the operators. Measurements showed that intensity of radiation varied from 65 to 210 milliroentgens per hour at a distance of 5 feet from the foot opening of the machine and from 200 to 700 milliroentgens per hour at a distance of 2 feet from the foot opening of the machine. Experimental tests showed that radiation could be detected at a distance of 20 feet when no customer was being fitted. For this reason, it is advisable to locate the machines so that scatter radiation from foot openings is not directed toward occupied regions, except where protective screens are interposed. In most instances this may be accomplished by directing the foot openings toward a blank wall.

During the survey of the machines, it was noted that unsafe practices were being carried on which might result in the operators receiving an excessive quantity of radiation. It was found that employees held children's feet in place in the foot opening of the X-ray machine without protecting their hands and forearms. Also, the operators were in a stooped position so that not only were their hands receiving maximum dosage of radiation, but also their entire bodies were receiving a high intensity of scatter radiation.

This unsafe practice should be prohibited unless employees are protected by leaded rubber gloves similar to those used by physicians in fluoroscopy work, and also by a protective shield to prevent scatter radiation from striking the body. If it is necessary to have the children's feet held in place within the foot opening, it is recommended that the parents do so. The total exposure received by parents from a single incident would certainly not approach that which an employee would receive during the working day. Probably some device could be designed to hold the children's feet in place.

Unauthorized persons, including children and adult customers, tamper with and operate the ma-

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F-6

chines. In some cases a secret switch has been installed to prevent such tampering. Therefore, it is recommended that these machines be provided with an additional switch in series with the operating mechanism of the machine, so located that it will not be readily accessible to unauthorized persons. In lieu of an additional switch, a removable main key switch may be provided.

It was found that sales people make no attempt to ascertain the number and dates of exposure of customers. If they were to question customers concerning previous exposures, it would tend to act as a deterrent to overexposure.

Unless shoes are worn on both feet while the customer is being X-rayed, excessive dosage may be received by the uncovered foot. Consequently, those operating the machines should insist on customers wearing shoes on both feet while being X-rayed.

Some of the automatic timing devices and other operating parts were found inoperative or defective. Sales people did not promptly report these defects to their superiors. Since defective equipment may result in excessive exposure to both customers and employees, sales people should report such defects promptly. Repairs and maintenance of the equipment should be performed by persons fully acquainted with the equipment.

In the past, authorities have agreed that the exposure to the foot should not exceed 2 roentgens per examination. (Safety code for the industrial use of X-rays, American Standards Association, New York City, 1946.) More recent opinion indicates that this value should be lowered. It is recommended that the exposure to the feet should not exceed 1 roentgen per viewing. Based on the dosage of 1 roentgen per viewing, it is our belief that examinations for shoe fittings should be limited to no more than three viewings in any one day, or a total of 12 per year. These limits include a safety factor and are set because of the fact that the majority of customers are children.

It is suggested that steps be taken to warn the general public

of the hazards. This may be accomplished in part by posting conspicuous signs on or near the machine, warning customers that repeated exposure may be harmful.

SUMMARY

1. At the present time, construction of most machines and methods of operating these machines are not satisfactory and present a potential hazard to both the public and employees.

2. By reconstruction of old machines, proper precautionary measures and reasonable attention to safe practices, the potential hazard can be controlled.

3. Recent correspondence with the three largest manufacturers of X-ray shoe-fitting machines indicates that they are in accord with the above recommendations and are now incorporating these changes in the production of new machines.

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425 North Michigan

(From page 32)

important part in the safety movement, and meeting rooms in previous NSC headquarters have never been adequate for the needs of the Council's sections and other groups. Four conference rooms have been provided in the new offices and three of these can be opened together to form a single room large enough to seat 75 persons.

The steady growth of the Council's statistical studies resulted some time ago in the installation of mechanical tabulating equipment. Increased facilities for this work have been provided in the new quarters.

For lunch and rest periods a staff lounge has been provided where 100 persons can be seated at tables. Vending machines provide milk, soft drinks, and other refreshments, and noon lunches can be obtained.

The north part of the headquarters is used by the professional and business staffs of the Council. At the south end are the

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printing, mimeographing and mailing units, along with greatly expanded storage facilities from which orders for publications and posters can be filled more efficiently.

Of the 290 members of the present staff, three have been with Council headquarters in all four homes. They are Sidney J. Williams, assistant to the president; Herbert H. Greenwald, director of the Accounting Division, and George O. Lindquist, director of the Purchasing Bureau.

For those attending the 38th National Safety Congress, the new quarters are just a short bus ride from the principal hotels.

We hope you come and see us!

The accompanying photographic tour of the new offices was the work of Cliff Benton, staff photographer, assisted by Jim Lehman.

Protecting Work Areas

(From page 25)

program, tells how to implement it, describes and illustrates new protection equipment, and provides equipment layout diagrams for different street operations. Thumb-indexed for quick reference, it can be used in the field as an operating guide and it helps supervisors train new employees in standardizing work area protection techniques.

In addition to providing maximum safety to utility field personnel by combining the latest improvements in both equipment and operating practice, planned work area protection makes it safer for the public to pass these areas and minimizes traffic interference due to street utility work.

The supervisor bears the brunt of instructing his men in the use of equipment, its care, and, most important, following up to see that it is used to best advantage. He must lead in planning protection for all situations and see that it is carried out. He must consider the traffic conditions to be faced.

Good housekeeping is stressed. All materials, tools and accessories pertaining to the job operation must be kept in a neat and orderly manner within the confines of the job operation. This not only pro-

motes efficiency and safety on the job but also makes a good impression on the public.

To insure that future developments will not be overlooked, the System's Street Protection Committee under the chairmanship of William F. Brown, Consolidated Edison safety director, will undertake a continuing study of the street safety situation throughout the territories served by the System companies.

Death in the Night

(From page 36)

standing in the open door. He was bending over an electric welding machine.

He came out shortly and we went to one side, while he briefed me. "The door's been open for 30 minutes; the gasoline motor on the welding machine's been turned off for perhaps 20. The air's good enough now, but it certainly wasn't before. It looks as if he was trying to weld a cracked pipe. He fell, they tell me, so that his face was right near the exhaust of the engine. So I guess it's not strange he got it, while the watchman was able to go in and get him without being knocked out."

Half an hour later we were back in the office, explaining the situation to Larson, our v-p for manufacturing, and to the plant superintendent. Jack Bell came in and took off for the scene with his camera and flash equipment. The night foreman and the general maintenance foreman sat glumly in one corner.

One part of the picture was missing. We hadn't turned up the origin of the complaint which brought Gorvan to the pump house. But Gorvan was a competent man on welding, so he would be a logical man to handle a problem of this kind of maintenance.

Then I went back over the scene, checking carefully. There was a small collection of oil near the welding machine, but no indication of a skid mark made by feet—only a smearing that might have come from his clothing after he fell.

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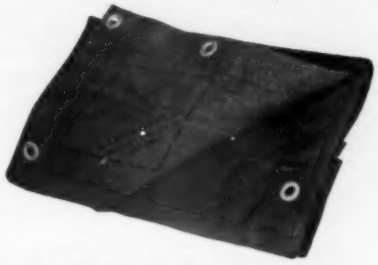

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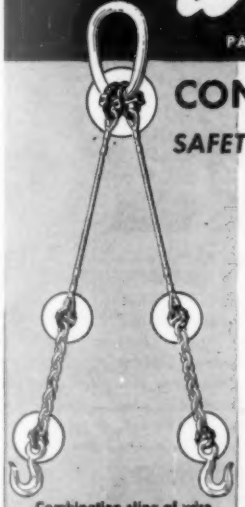

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found Gorvan, we chalked the position of the body on the floor. The coroner was still working outside the door, so I checked the uncovered body, and found the oil stains stretched from the side of the shoes and perhaps six inches up the legs of the overalls. That checked with the body position as given us.

Sue had coffee waiting for me when I got home at 2 a.m. Sitting and talking there quietly, with nothing more to do on the case till the plant opened, the old sense of frustration mounted. Lord knows, I haven't made any big point of this kind of unsafe practice. But a good welder ought to know about exhaust gases, ought to leave his machine outside and carry the leads in on an inside job. Certainly there had been no unnecessary delay in starting artificial respiration — Gorvan hadn't been more than five feet from the door when they worked on him. Plant protection *had* found him—and we can't look into every corner of the plant every ten minutes.

Sue, God bless her, broke my line of thought with talk about the party, about Jack and his girl, about anything under the sun except the accident, and in an hour I could relax and sleep.

By noon, we had the picture pretty complete. The coroner's doctor verified it as carbon monoxide poisoning. The bruise could have come from the fall, and indicated a jolt hard enough to have caused unconsciousness but not death. Inquest was scheduled for the afternoon. The only missing link was still the source of the report of any defect in the piping.

MacPherson, our personnel manager, dropped in to commiserate with me on the dent the accident made in our campaign. Just as he was leaving, he stopped and said, "There's something odd on this one. My social worker visited the widow this morning to see if she needed help. Mrs. Gorvan put on quite an act of grief and hysteria.

"Before the social worker left, a man walked in without knocking. Mrs. Gorvan turned white as a ghost. When he saw my girl, he stopped short, muttered some words of sympathy and made

neighborly offers of help. Then he left."

I wasn't much interested, but I asked, "Who was he." Mac shook his head. "Probably from the plant. He had a dinner pail, anyhow. The girl didn't get his name."

I went over the pump room again, talking to the engineer who is in charge on the day shift. He reported no trouble had been noted. I called the night engineer and drew blank on that. I looked over the photos Jack had taken, getting nothing.

As I passed the personnel office, I saw a young woman in black waiting. I stepped into Mac's office to find out if she was Mrs. Gorvan. Mac had some insurance forms and a bundle on his desk—Gorvan's clothing.

Suddenly I got an idea. I ripped the paper off the package and picked up a shoe. "Stall her," I said, and beat it with the shoes for my office and another look at the photos.

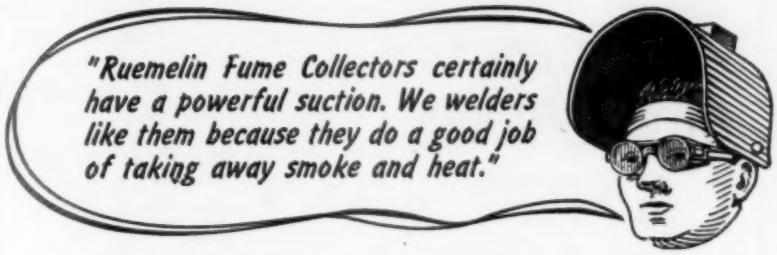
My hunch was right.

The oil slick on the floor was in such a position that Gorvan must have stepped in it while working on the kind of job that apparently had been done. But those safety shoes were brand new, only lightly scuffed, and completely free from any oil.

I called Mac and had him send his social worker through the plant, looking for Mrs. Gorvan's morning visitor. In an hour, she'd spotted him, and by that time Mrs. Gorvan, still waiting outside Mac's office, was almost hysterical. We deliberately made the call to the police so she could hear it, and she passed out cold.

The police took it from there. It was a commonplace triangle story. The other man, a fellow maintenance man, clubbed Gorvan, set him in his car in the Gorvan garage, started the motor and shut the door. After Gorvan died, his murderer drove the body up an alley to the pump room, which has a door on the alley which he had previously unlocked.

He staged the fake accident, using a welding machine which had been used on a job in the yard nearby that afternoon. He left by the alley door, walked to the main gate, went past a sleepy guard,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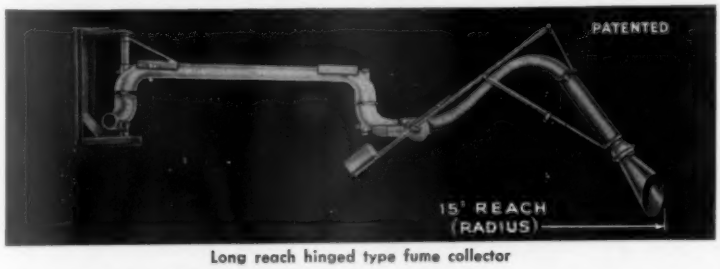

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punched Gorvan's time card in (none of us had checked the time on that card), walked to the pump room and out its alley door again, locking it behind him.

But he had forgotten to smear oil on the shoes of the dead man after he carried him to the scene and placed him on the floor.

And I, the prize *dumkopf*, the supposedly skillful investigator of accidents, had noticed those new shoes and hadn't had the sense to realize what they meant. If I hadn't stopped in Mac's office and seen that bundle, I'd have lost, not just an accident-free record, but probably the whole effectiveness of our new campaign and all the potential it carries for stopping injuries and maybe a death or two.

I feel, right now, very humble and more than ever convinced of the value of the thorough investigation of even the most obvious kind of accidents.

(To be continued)

You Can Help

(From page 42)

information on your program. Invite them to some of your safety conferences.

3. *Many shop teachers do not know what industry expects of them in the matter of safety instruction.*

Make a list of the important things you expect in a young worker. Ask the instructor to be sure to incorporate them in his program. In the beginning, keep your list short. You will be surprised with the results and how fast the list may be expanded.

4. *School people are happy to have experts and technicians talk to their classes.*

Somehow it's much more convincing when *you* tell the students to wear goggles, to use guards, to maintain an orderly shop, to use proper tools, to do their work the correct, and thus the safe, way. *Your* advice will reinforce whatever instruction the teacher is giving.

5. *The recommendations of the President's Conference on In-*

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dustrial Safety offer a good program for the school shop.

Do what you can to get the shop teachers of your community to adopt the recommendations of the President's Conference and to take an active part in the program.

6. *Schools lack adequate instruction materials.*

Many school people are not familiar with the services of the National Safety Council. The Council will be glad to send copies of its *School Safety Services Guide* which lists and describes all materials and services. Pass them on to local school officials.

Too often school budgets are not adequate to purchase much in the way of safety materials. The Council has two inexpensive membership services for schools. Providing them for the schools of your community is an important public service program for your industry. It will pay dividends because the products of these schools come to you for employment.

An excellent example of public service and company cooperation is that of E. I. du Pont de Nemours & Co. This company sends annual subscriptions to *Safety Education* magazine to 127 schools in communities in which its plants are located.

Locking Out Switches

(From page 29)

satisfactory but expensive. In an emergency the supervisor has only one or two keys to find, yet the locks for ordinary purposes are all different.

22. If two or more men are working on a job, then each man should attach his own lock so that the controls cannot be operated until all locks have been removed. Each repairman should be impressed with the fact that, even though someone has already locked the controls, he will still not be protected unless he attaches his own padlock.

23. If the controls are so located that only one lock can be accommodated, it is recommended that a special tongue be devised to hold several locks. (See Figure 3.) Two pieces of ⅛-inch metal are used, and large and small openings are provided at each end

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to take up looseness and to prevent movement of the switch handle during operation. (See Figure 4.)

24. If a job has not been completed by the end of the shift, the men going off the job should not remove their locks until those on the next shift have attached their locks.

25. In large plants where the controls may be some distance from the operation under repair, use of tags is extremely important. In these cases it is recommended that tags be attached to the padlocks, naming the department where the work is being done and the person responsible for the repair job. The supervisor will then have the information he needs to control some of the hazards to adjacent departments.

Methods of Locking Out Various Types of Controls

26. The common type of control switch with a pull-down handle has an attachment so that the handle can be locked in an open position. Moreover, the majority of manufacturers are now constructing lock-out devices as part of the switch equipment. Purchasing departments should be requested to buy either equipment with built-in locking devices or equipment designed for insertion of padlocks.

Figure 5. Courtesy Canada Cement Co.

27. In plants where older equipment is in use or where explosion-proof or dust-tight equipment is installed, it may be necessary for the maintenance department to construct attachments to which locks can be applied. A few satisfactory methods of locking out switches are described in the following paragraphs.

28. A sliding rod device can be attached to a machine so that when the rod is extended and locked, the control handle cannot be operated to energize the equipment. (See Figure 5.) The lock attachment on the sliding bar is provided with several matched holes

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to accommodate repairmen's locks.

29. This method can also be used to lock out built-in clutch bars, to prevent an operator from turning on the equipment with one hand while removing jammed or crumpled material with the other hand.

30. Another device is a rotary type switch with a hole drilled in the upper portion through which

Figure 6

a lock can be inserted to prevent rotation of the electrical operating arm. (See Figure 6.) In this case a special tongue should be used to which all repairmen can attach their locks.

31. Where the operating controls are installed in a metal-covered box with no locks, the maintenance department can weld or rivet a common hasp to the door with a lock staple so that the

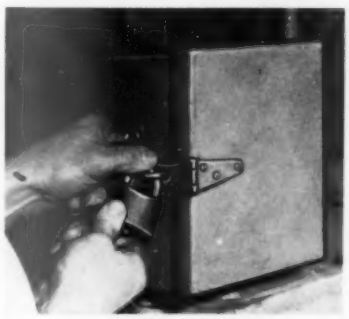

Figure 7

switch can be opened and the door closed and padlocked. (See Figure 7.) This method can also be used to provide for locks on fuse boxes.

32. When push button controls are used to operate machinery, it is especially important that side guards, flaps, protective rims, or locking devices be provided be-

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cause of the additional hazard that someone may lean or bump against the controls and start the machinery.

Figure 8

33. Figure 8 shows a stationary perforated disc surrounded by a movable perforated disc which can be rotated to cover the top of the starting button. A lock can then be inserted through the overlapping holes in the two discs to keep this cover in place. There are several holes in the disc so that several workers can apply their locks.

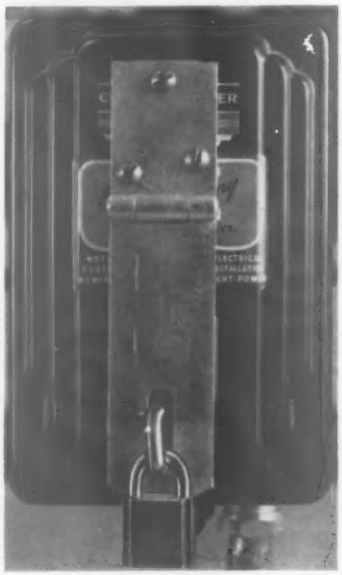

Figure 9

34. Another method is to fasten a common hasp to the cover so that the hasp will fold directly over the control button and lock in place. (See Figure 9.) To operate the button, the hasp must be unlocked and folded back to expose the button.

35. The worker should remember that these two methods are only point-of-operation controls. When electrical work is being done on a piece of equipment, *the lock should be placed on the main switch.* A short in the wiring or

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tampering with the magnetic contactors could energize the circuit.

36. Figure 10 shows a method of locking out a common type of toggle switch used to operate relays or other controls. The pin inserted through the holes in the frame prevents the toggle switch from being operated, and at the extreme end of the rod an eyelet can be made to accommodate one or more locks.

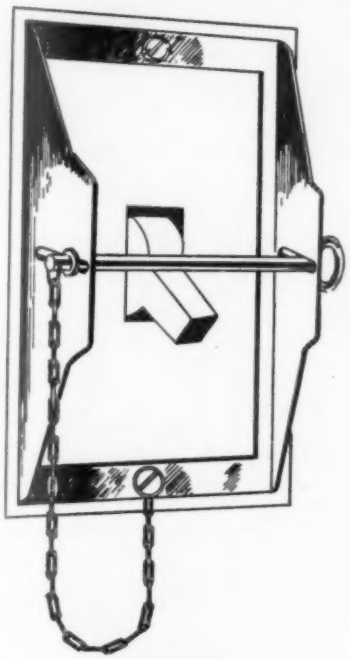

Figure 10

37. *No matter what method of locking out electric switches is used, effective control can be maintained only by constant supervision and by training workers in the safe procedure to be followed.* Such materials as posters and safety instruction cards (see illustration) can be used not only to train new workers but also to remind older employees of the necessary safe practices.

ACKNOWLEDGMENT

The first draft of this data sheet was prepared by Fred Gass, safety engineer, General Electric Company, and member of the Executive Committee, Electrical Equipment Section, National Safety Council, and reviewed by W. R. Ainley, chairman, Engineering Committee. The final draft was prepared by George MacDonald, staff representative, Electrical Equipment Section, reviewed by the Safe Practices Conference Committee, and approved by the Industrial Conference of the Council.

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NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Washfountains

The Bradley Washfountain Co., Milwaukee, Wis., announces that all Bradley precast marble and stone washfountains now are available with metal pedestals. Because of their lighter weight the new pedestals afford an appreciable saving in freight costs and also are easier to handle on the job.

Convenience of installation and later maintenance are enhanced by the fact that the panels of the pedestals are easily removable, thus providing ready access to mechanism within. In addition metal pedestals give the fountains a new streamlined appearance and because they are entirely demountable make it possible to pack and ship a complete washfountain in a single crate.

Steel Scaffolding

A new line of steel scaffolding for light duty construction and maintenance is announced by Safway Steel Products, Inc., 6234 W. State St., Milwaukee 13, Wis. The new product is known as the Safway "4 by 4" steel scaffolding because the basic end frame members measure 4 ft.

wide by 4 ft. high. These parts may be assembled in scaffolds or towers as high as 40 ft., and for loads not exceeding 50 lbs. per sq. ft. Platforms are easily shifted to follow progress of the work.

Members are made from high carbon steel tubing of ample wall thickness and diameter, solidly welded in a sturdy, rigid design. The new scaffolding has been approved by Underwriters' Laboratories, Inc.

Scaffolding is easily erected to fit any job. On the ground, legs rest on simple base plates or screw jacks which compensate for uneven terrain. To increase the scaffold height, additional end frames are installed by simply slipping the tubular legs over integral coupling pins on the top of the next lower frame. Vertical assemblies of end frames are secured to each other at 7 ft. or 10 ft. distances with tubular steel cross braces. Guard rails and guard rail posts are available for the working level. Working platforms can be located at 16 inch intervals, easily following the progress of the work and placing the worker at the most advantageous height. Work materials are always ready at waist level on a convenient material rack. End frames are designed with a built-in ladder for easy access to work platforms.

Collapsible Scaffold Jacks

Star Welding & Mfg. Co., Dept. E, 5140 Superior Ave., Cleveland 3, Ohio, is offering three collapsible scaffold jacks which are tested at over 1500 pound load capacity and are quickly adjusted up and down at 4-inch intervals.

The ladder which is firmly bolted in position telescopes when the jack is folded up. Only small storage space is required. Set screw holds plank in position. Available in three sizes, jacks are made for ceilings from 7½ to 14 feet.

Exhausters

A new line of explosion-proof wall exhausters is being offered by Jenn Air Products Co., 333 N. Pennsylvania St., Indianapolis.

These units are flanged directly to the outside wall. This unusual type of construction has the motor mounted outside the air stream with the entire unit on the building exterior, away from possible explosive concentrations. Housings are constructed of aluminum, and non-ferrous centrifugal impellers are directly connected to the ball bearing explosion-proof motors. Similar units especially adapted for roof applications are also available.

Sweeping Mop

A new type sweeping mop that opens and closes like a pair of scissors has recently been developed by G. H. Tennant Co., 2550-A N. Second St., Minneapolis 11, Minn. It allows the operator to sweep a path from 6 to 57 inches wide (smaller mop 6 to 37 inches).

As the mop is pushed across the floor, dirt and litter are forced into the "V"-shaped pocket formed by the 2 mop-heads. This allows continuous sweeping without loss of load. Better dust pick-up per foot of travel is another reported advantage. This is due to the angle at which the mop-heads are set, giving 29 percent more mop contact with the floor. This feature allows more thorough sweeping, greater dust control, plus increased polishing action.

The new unit draws dust and litter from under desks, machines, etc., without lifting the mop from the floor. The operator simply closes the mop-heads around the litter and draws it back to the aisle. In the same way litter may be compressed between the mop-heads and lifted into rubbish cans.

Special features include lightweight tubular steel handles, rubber grips, and careful balancing to make the new unit easy to handle. Fresh 10-inch refills of long, staple cotton strands may be quickly inserted into the rust-resistant mop-arm channels.

NEW SAFETY EQUIPMENT FOR INDUSTRY

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Hydraulic Tailgate Loader

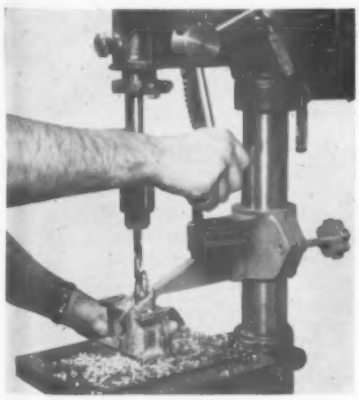
A hydraulically powered tailgate loader for pickup trucks, called the Lift-O-Matic, has been developed by National Lift Co., Waukesha, Wis., subsidiary of Gar Wood Industries, Inc., Wayne, Mich.

The Lift-O-Matic can easily be installed on most pickup trucks. Its lifting capacity is 1000 pounds. The hydraulic power is provided by a fan-belt driven hydraulic pump with its own self-contained clutch. The pump operates only when lifting power is needed. One handy control, installed on the loader, is used for either raising, holding or lowering the tailgate. The operator can operate the unit while riding up or down with the load.

The unit is all steel and sturdily constructed. When it is not being used to load or unload the truck, it can be level-locked at the truck body floor level, or it can be swung up and securely locked, acting as a regular tailgate. A safety by-pass valve in the hydraulic pump prevents overloading and endangering the hydraulic system.

Drill Clamp

Particularly designed to hold jigs, fixtures, work to be drilled, reamed, counter-



sunk or otherwise machined on the drill press, is the new drill clamp of the M. E. Engineering Co., 1158 N. Highland Ave., Los Angeles 38, Calif.

The positive grip eliminates dangers of work whirling with the tool or climbing the drill. The clamp reduces breakage of tools, due to misalignment of work and holds work with positive grip by hand tightening alone. It is easily mounted on drill press column without removing the head. Always there to be swung into position immediately.

Bulletin Board

Industrial Products Co., 2850 N. Fourth St., Philadelphia 33, announces a new bulletin board manufactured of a specially fabricated cork faced material with a hardwood frame. The cork face is in natural tan color and the frame is satin finish

stained to harmonize. Over all size is 27″ x 40″, providing an open area for bulletins and other notices measuring 23″ x 30″. Top panel may be eliminated if desired, increasing the usable area to 23″ x 36″.

Materials Handling Box

A collapsible, 2000 lb.-capacity materials handling box, which may be erected in less than 20 seconds, is a new development of Phillips Mine and Mill Supply

Co., 2313 Jane St., Pittsburgh 3. Designed for storing and transporting bulk materials and parts, the Model B-20 "Phil-Box" folds down to a height of only 9-1/16″ with a level top surface. Since these boxes can be stacked in small storage space, this equipment is particularly recommended as a space saver. In the erected position the box stands 28-1/8″ high, with a 49″ x 37″ x 24″ box interior. Construction is such that a fork lift truck or pallet truck may enter from all four sides. Each side is held in the upright position by a new type latch with a safety catch.

Made of heavy gauge steel with a box corrugation design for maximum rigidity at minimum weight, this box is of all-welded construction, with smooth, rolled edges as a safety feature. A small "table" on the inside of the legs assures stability in stacking and prevents spreading of the sides. The box is also available in Model B-50, a 5000 lb.-capacity materials handling box.

Safety Hat

High impact resistance is built into a new 12-ounce aircraft grade aluminum alloy safety hat placed on the market by E. D. Bullard Co., 275 Eighth St., San Francisco, 3. Ribbed design, laboratory drop tests demonstrate, furnish ample structural strength while the crown remains resilient to absorb much of the impact of a falling

object. The hat incorporates a second-impact-absorbing feature. The inner hat assembly is designed to absorb shock with its full-floating, six-point suspension hammock. Headbands and hammocks are fully adjustable to fit all head shapes and sizes. The entire assembly can be replaced without tools with slide action wedge type fasteners. The crown is natural aluminum color with a non-glare finish.

Pickling Chain

A new monel metal pickling chain is now being manufactured by S. G. Taylor Chain Co., Hammond, Ind. Manufacturer states this chain has greater strength, greater resistance to wear than ordinary wrought iron or carbon steel pickling chains.

NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Dynamometer

W. C. Dillon & Co., Inc., 5410 W. Harrison St., Chicago 44, announce a new idea in testing the safety of various types of chains used in hoists, slings, grabs, etc. It consists of a precision Dillon Dynamometer used to measure force and a method of applying the load to such chains.

The dynamometer is a departure from ordinary "spring" measuring devices. It operates through deflection of a special alloy steel beam and requires only .004 inch movement to indicate a full scale reading. There are no levers or weights to adjust. The instant a load is applied, it is indicated directly in pound on the dial face.

The dynamometer can also be used for weighing heavy loads by suspending them from chain hoists, thus making it suitable to the testing of chains as well.

Explosion-Proof Lighting Fixtures

The Pyle-National Co., 1334 N. Kostner Ave., Chicago 51, announces the addition of a series of explosion-proof lighting fixtures and a series of dust-tight lighting fixtures to its line of fixtures for hazardous locations. LE Series, explosion-proof (Class I, Groups C and D) are for use in locations where highly flammable materials

are manufactured or handled. Rugged, flame-tight cast aluminum alloy housings render internal explosions harmless, and insure safe operating temperatures. Threaded construction permits easy access to interior for wiring and lamp replacement. Fixtures are available in many types and sizes.

DE Series, dust-tight (Class II, Groups E, F, G and Class III) for use in locations where flammable dusts are present in quantity. Strong, one-piece cast aluminum alloy housings are designed to exclude dust from the interior and to avoid accumulation of dust on the exterior surface. Available in many types and sizes.

Acid Mask

Industrial Products Co., 2850 N. Fourth St., Philadelphia 33, announces a new protective mask for use when repairing acid line breaks or on other jobs and operations where complete face, head and neck coverage is required. The new mask is known as No. 7V Nitrometer-Acid Mask.

It is manufactured with an aluminum frame to which is attached an electronically sealed hood and cape of Vinylite. Light weight and flexible, it allows freedom of movement and comfort. It extends well down over the shoulders and is made full so that the mask may be turned up over the head when wearer is not exposed to the hazard. Mask is fitted with a new type of headgear that adjusts comfortably to all head sizes. Window is of heavy gauge plastic for impact resistance. It may be quickly changed without the use of tools.

Dock Boards

Magline, Inc., Pinconning, Mich., announces a new standard line of magnesium dock boards. Designed specifically for use

with truck docks, the new lightweight boards eliminate the necessity of a dock board of special design in many loading applications. A feature of the new unit is a fully adjustable, automatic drop lock which drops down against the dock and locks the board securely in position to prevent slippage. The new design also facilitates easier truck loading by making it possible for the truck to back up within 3 inches of the dock. In the instances where the truck bed is lower than dock level, the dock board can be reversed simply by turning it around. The boards are crowned to compensate for height differences.

The boards will be produced in two rated load capacities; Series M1, rated to carry 1,000 pounds per axle, and Series M2, rated at 2,000 pounds per axle.

News Items

The Kirk & Blum Manufacturing Co., Cincinnati, dust and fume control equipment manufacturers, recently acquired the entire plant and property of The Cincinnati Planer Co. The plant, located at 3120 Forrer St. in suburban Oakley, will be occupied by Kirk & Blum about the end of the year.

* * *

The McKay Co., Pittsburgh, Pa., manufacturers of commercial and industrial chains, arc welding electrodes and chemical products, announce the appointment of Fred A. Kaufman as general sales manager. Mr. Kaufman succeeds Fred C. Smith who has assumed the position of special assistant to the president, J. C. McKay.

Mr. Kaufman has been with The McKay Co. for a number of years. Immediately after his graduation from college as a metallurgical engineer, he was associated with Carnegie-Illinois Corporation, Pittsburgh. His first association with The McKay Co. was in 1943.

* * *

William H. Loveman, president of the Burdett Oxygen Co. of Cleveland, announces the opening of a new branch store and warehouse at 325 Short St., Columbus, Ohio. This is the fourth branch in Ohio, the others being located in Akron, Cincinnati and Mansfield. The manager of the Columbus branch is John Feeser. A supply of oxygen, acetylene and other industrial gases as well as a complete stock of welding, cutting and safety equipment and supplies will be carried. Also featured will be a complete line of General Electric welding supplies.

TRADE PUBLICATIONS
in the Safety Field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.

1. **"Facts About Athlete's Foot":** Bulletin explains skin-toughening method of athlete's foot reduction. Explains methods and gives list and reports of users. Onox, Inc.

2. **Dynamometer:** Informative brochure on use of dynamometer to measure traction, tension and weight. Shows many different uses for the dynamometer and gives names of companies which have it in use. May be obtained in kilos or pounds. W. C. Dillon & Co., Inc.

3. **"Replaceable Type Air Filters":** Illustrated pamphlet of information on replaceable air filters. Filtering media consists of continuous, slightly curled, interlaced glass filaments held in place with thermo-plastic bond to form resilient pad. Sprayed with viscous fluid and placed in fiberboard casing between perforated metal grilles. American Air Filter Co.

4. **Flexible Metal Slings:** A new price list giving complete specifications for woven wire sling series. Slings available in standard widths from 3 to 30 inches, and in lengths from 36 to 132 inches. Offered in a variety of specifications, using different metals and alloys. Cambridge Wire Cloth Co.

5. **Respiratory Protection:** Bulletin B-20 contains complete information and details on design and operation of self-contained apparatus for breathing. Provides for 30 minutes of oxygen for breathing safety in gases, smoke, for fighting fires, and industrial emergencies. Approved by U. S. Bureau of Mines. Mine Safety Appliances Co.

6. **Fire Hose Couplings:** Informative bulletin on new complete line of fire hose couplings and accessories. Includes satin finish pin lugs and lug couplings in complete range of sizes and types for chemical, linen, mill and fire department hose. Hose Accessories Co.

7. **Ladder Safety:** Illustrated pamphlet about hydraulically operated ladder-leveling device. Describes advantages, uses in different situations. Shows how oil transfers to equalize load, making legs conform to surface. Anderson Products Company.

8. **Industrial Safety Belts:** Informative illustrated catalog on many types of industrial safety belts, including window cleaners, linemen, bridge workers and many others. Also contains information on comparison of safety properties of leather and web belts. Industrial Safety Belt Co.

9. **"Safety Color Code":** An illustrated pamphlet on where and how to use different colors for promotion of various safety factors. Consistent application lowers accidents, reduces man-hours lost through absenteeism and improves morale. Given situations explained. E. I. du Pont de Nemours & Co., Inc.

10. **Fluorescent Lamp Guards:** A pamphlet on how to reduce the danger of falling fluorescent lamps by means of metal clamps. Clamps can be applied permanently without necessitating removal for replacing burned out lamps. Illustrated. Den-El Equipment Co.

11. **"Linemen's Safety Equipment":** An illustrated price list showing many types of linemen's equipment designed to promote safety and reduce accidents. Also contains information about each item. W. M. Bashlin Co.

12. **Iron Asphalt Patching:** Informative, illustrated pamphlet concerning iron asphalt patching material which produces long life repairs and makes possible easy, fast patching or resurfacing of concrete floors. Gives steps used in preparation. The Master Builders Co.

13. **Eye Wash Fountains:** Descriptive pamphlet regarding equipment designed to save the sight of workers. Designed to deliver a twin stream of clean water into the eyes of workers who get chemicals or foreign objects into eyes, and reduce lost-time accidents. Haws Drinking Faucet Co.

14. **"Safety Eyewear Selector":** A safety eyewear selector designed to aid in selecting proper safety glasses for 69 different jobs. Job classification numbers refer user to selection table that lists occupations. Various safety frames applicable for each task numbered and illustrated. Bausch & Lomb Optical Co.

15. **Elevator Safety Clamps:** Informative pamphlet describing advantages of elevator safety clamps. Tells how death and maiming may be reduced by application of these clamps. Specifications and illustrations presented. Safety Devices, Inc.

16. **"Pneumatic Conveying Systems":** A catalog of diagrams and information about carrying lumpy, granular or powdered materials in a flow of air, or inert gas, without segregation, contamination or excessive abrasion within the system by means of pipe lines. Convair Corp.

17. **Material Handling:** Information in catalog form, with illustrations, on material handling problems. Many different situations given, with explanations on how to overcome them. Odd and unusual jobs explained as well as the conventional. Clark Equipment Company.

18. **How To Handle Drums:** Folder with illustrations showing how to handle drums and barrels of weights up to 850 lbs. with safety and ease. Mechanical grip and leverage principle. Ernst Drumobile Sales Corp.

NATIONAL SAFETY NEWS

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SEPTEMBER, 1950

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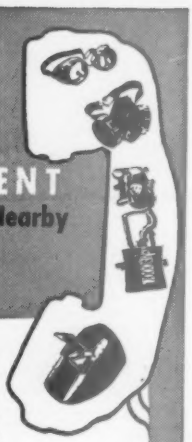

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CASPER, WYO.—Casper Supply Co.
CHARLESTON, S. C.—Cameron & Barkley Co.
CHARLESTON, W. VA.—Safety First Supply Co.
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